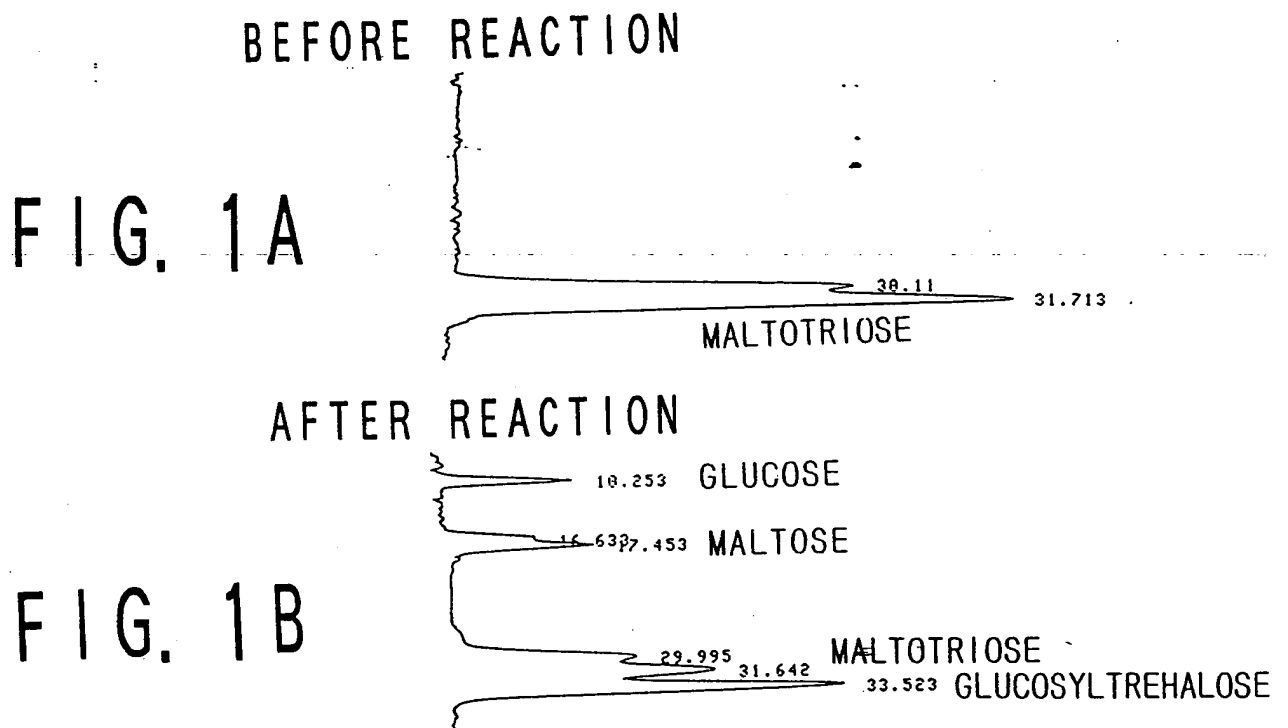


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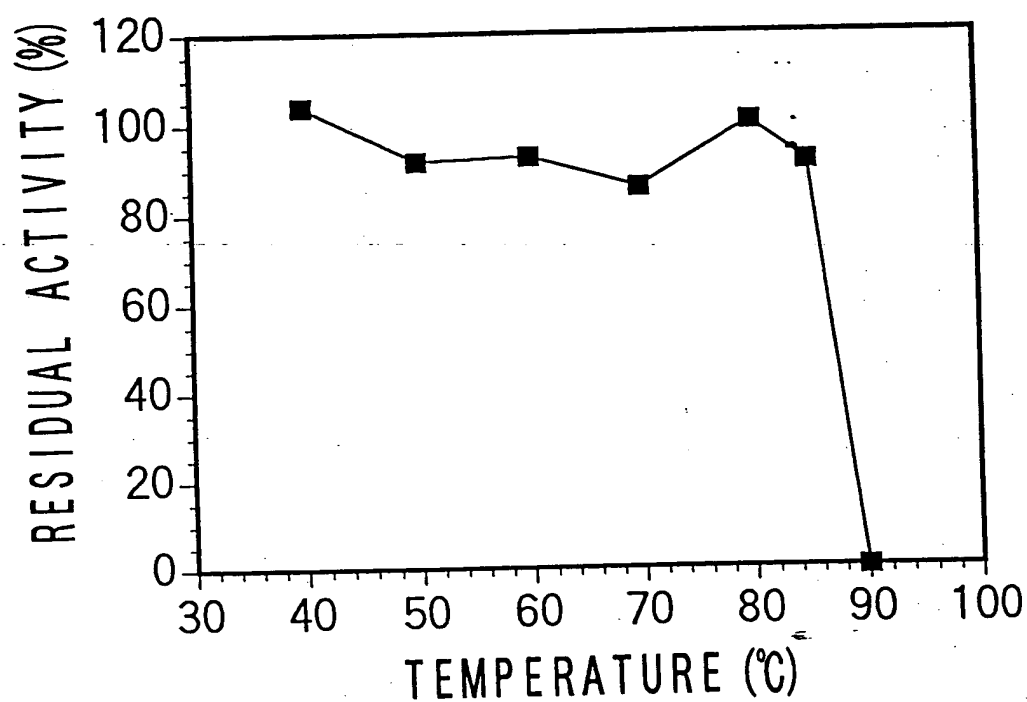


FIG. 2

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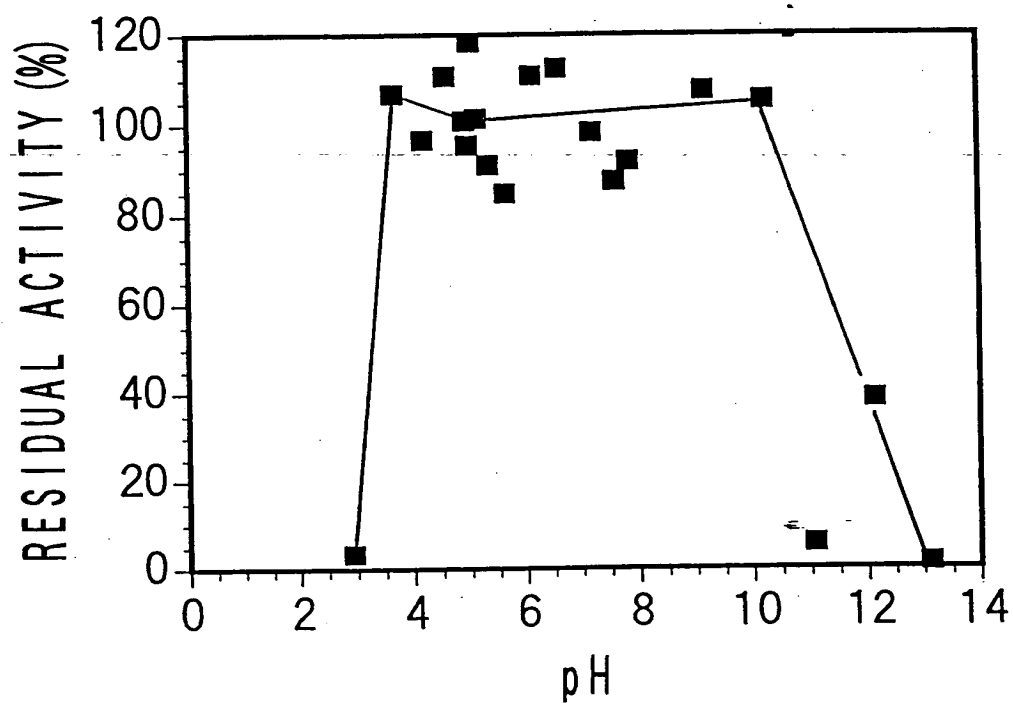


FIG. 3

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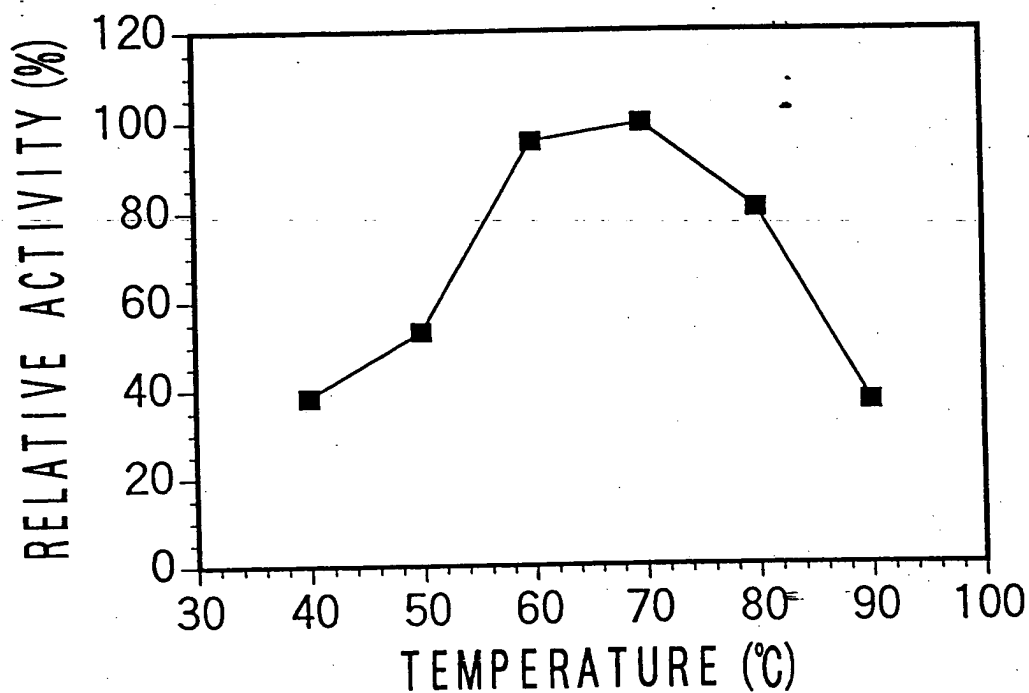


FIG. 4

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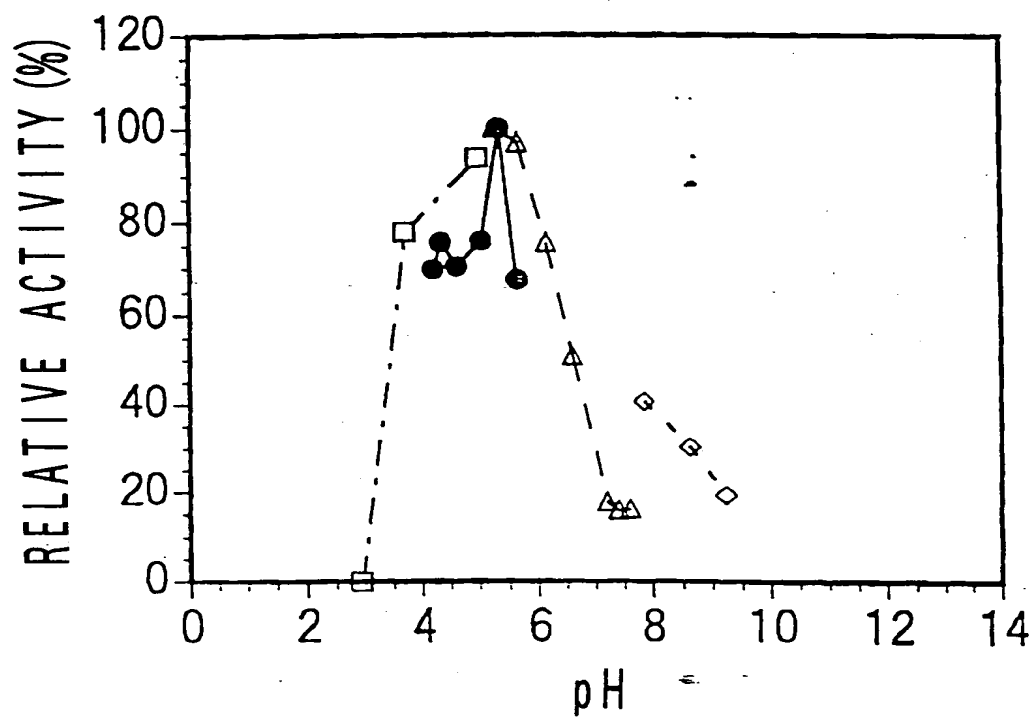


FIG. 5

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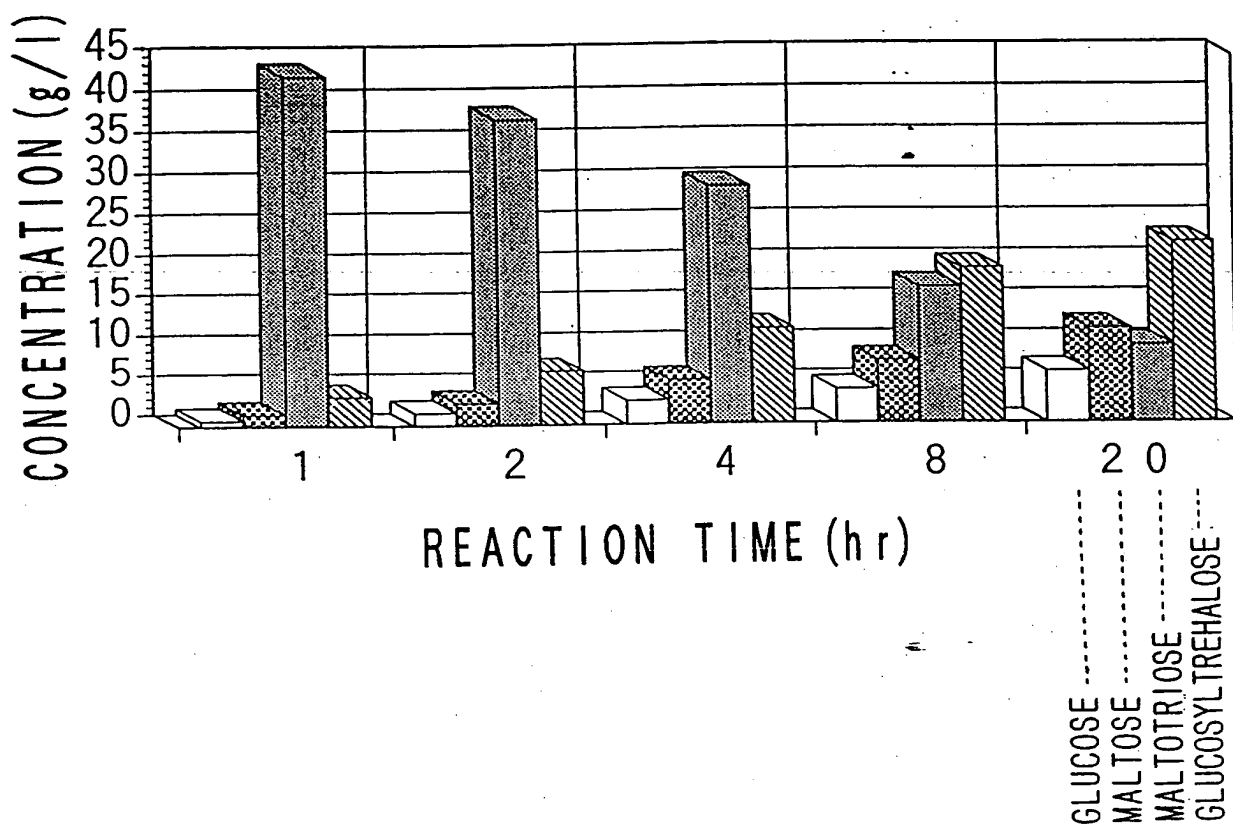


FIG. 6

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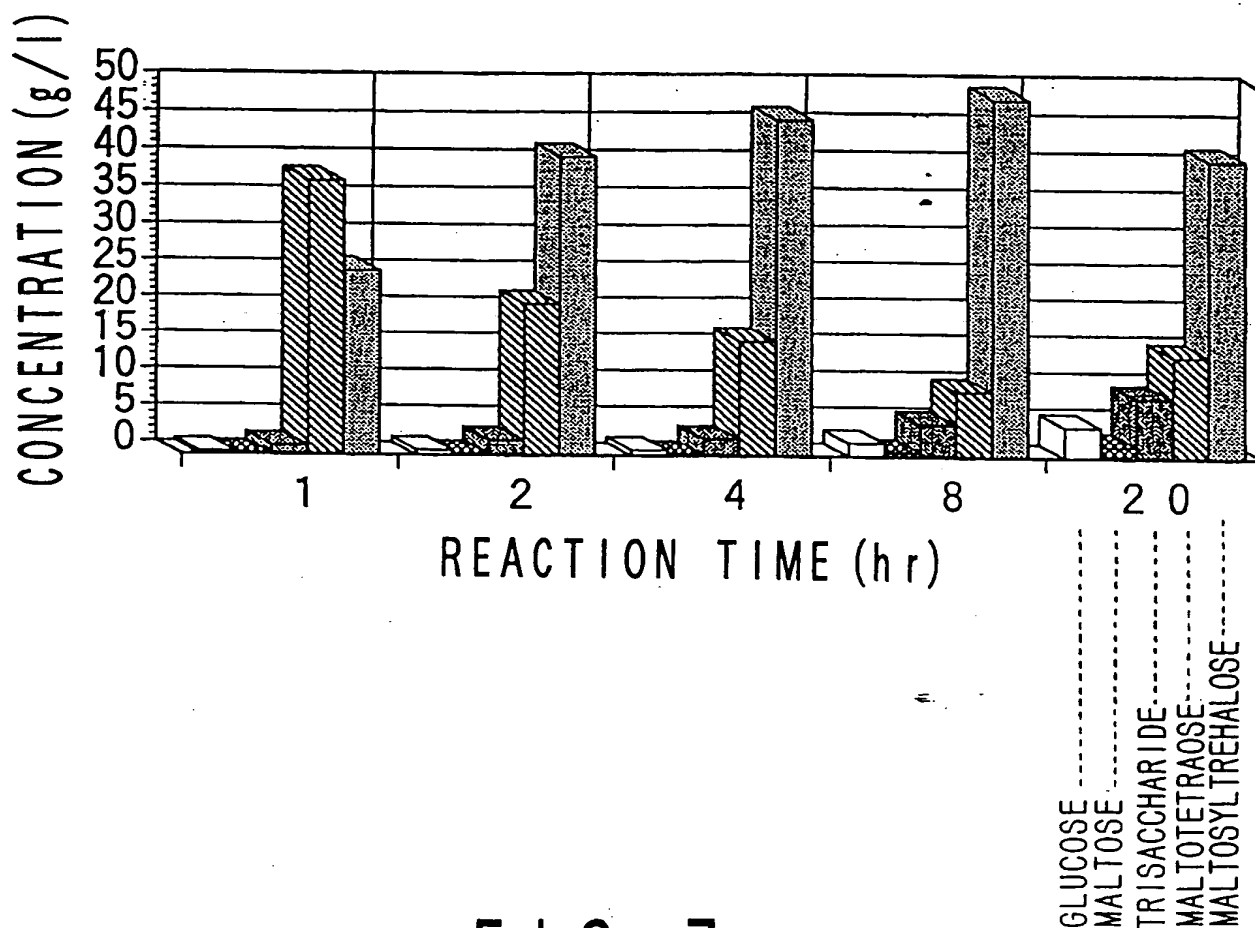


FIG. 7

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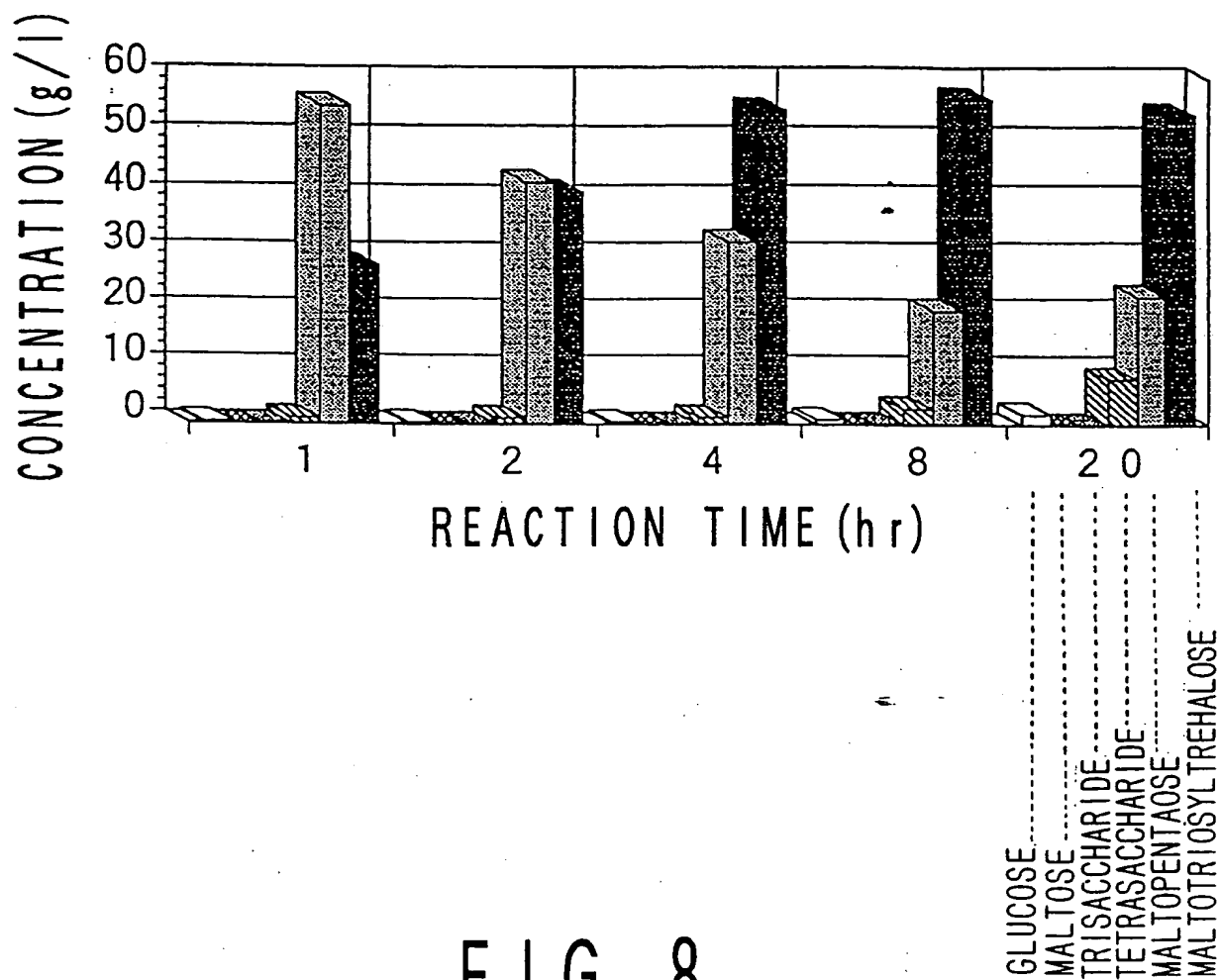


FIG. 8



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REACTION PRODUCT

FIG. 9A

..... 8.61 HEPTASACCHARIDE  
..... 9.28 HEXASACCHARIDE  
..... 10.08 PENTASACCHARIDE  
..... 11.12 TETRASACCHARIDE  
..... 12.45 TRISACCHARIDE  
..... 14.52 DISACCHARIDE  
..... 16.64 MONOSACCHARIDE

CONTROL  
(HYDROLYSATE ONLY BY AMYLASE)

FIG. 9B

..... 8.91 HEPTASACCHARIDE  
..... 9.61 HEXASACCHARIDE  
..... 10.53 PENTASACCHARIDE  
..... 11.63 TETRASACCHARIDE  
..... 12.93 TRISACCHARIDE  
..... 14.51 DISACCHARIDE  
..... 16.48 MONOSACCHARIDE

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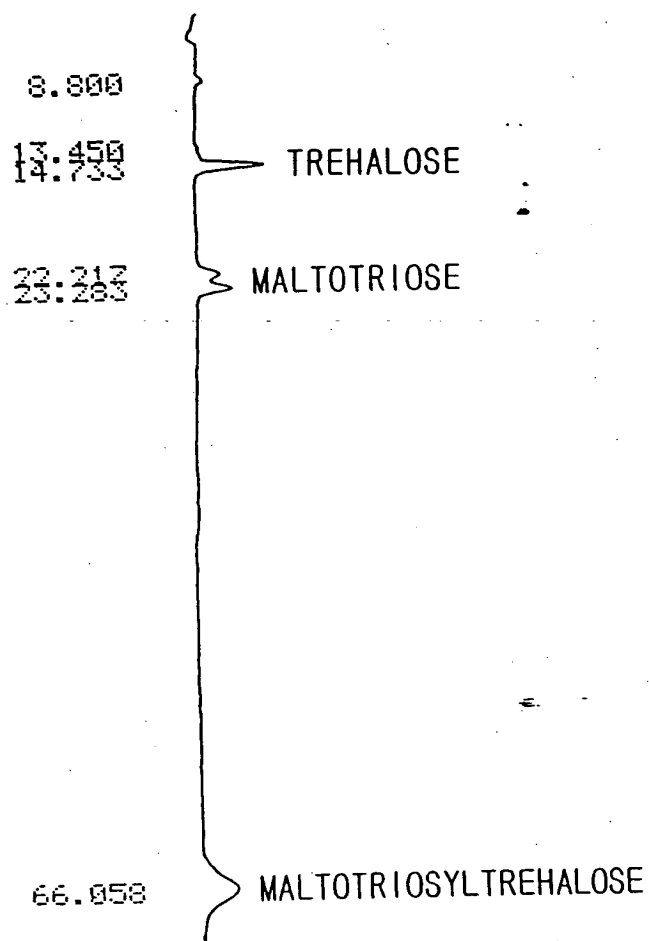


FIG. 10

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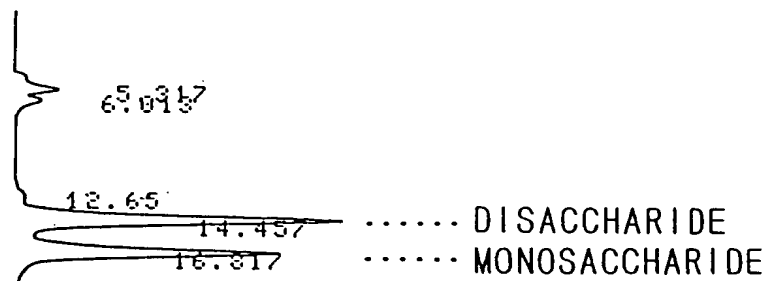


FIG. 11

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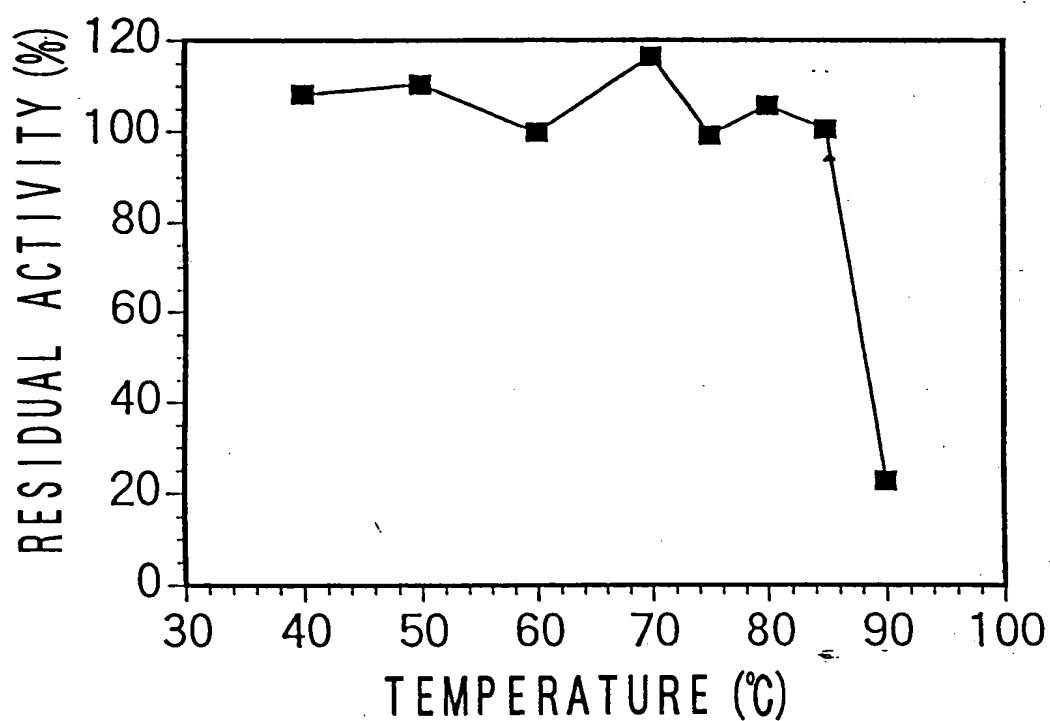


FIG. 12

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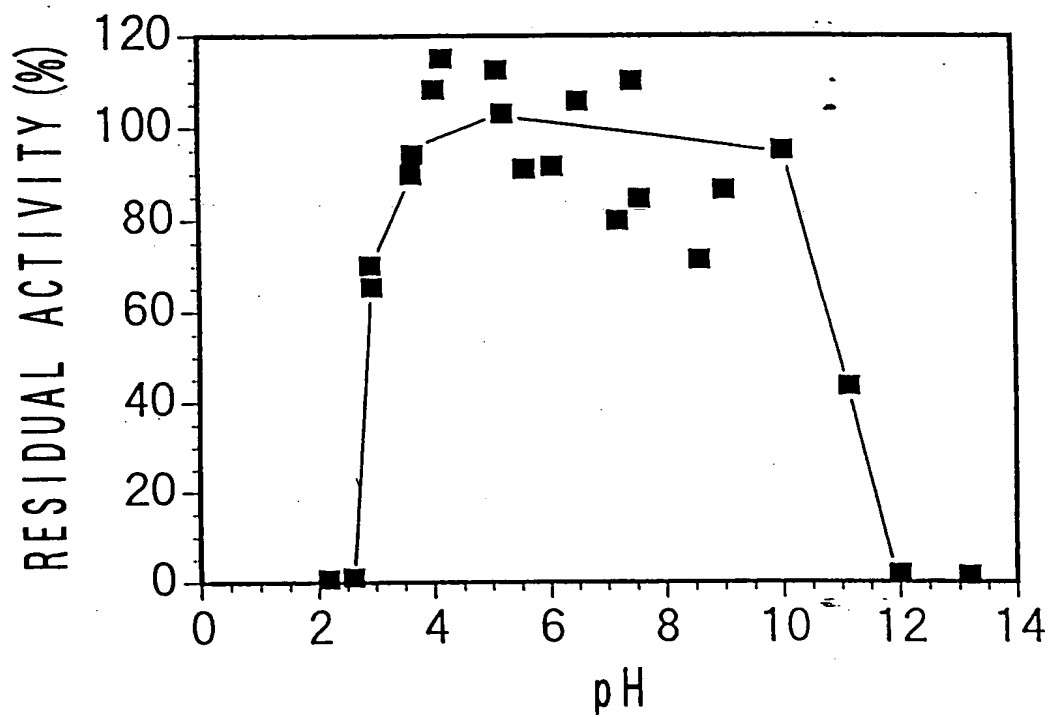


FIG. 13

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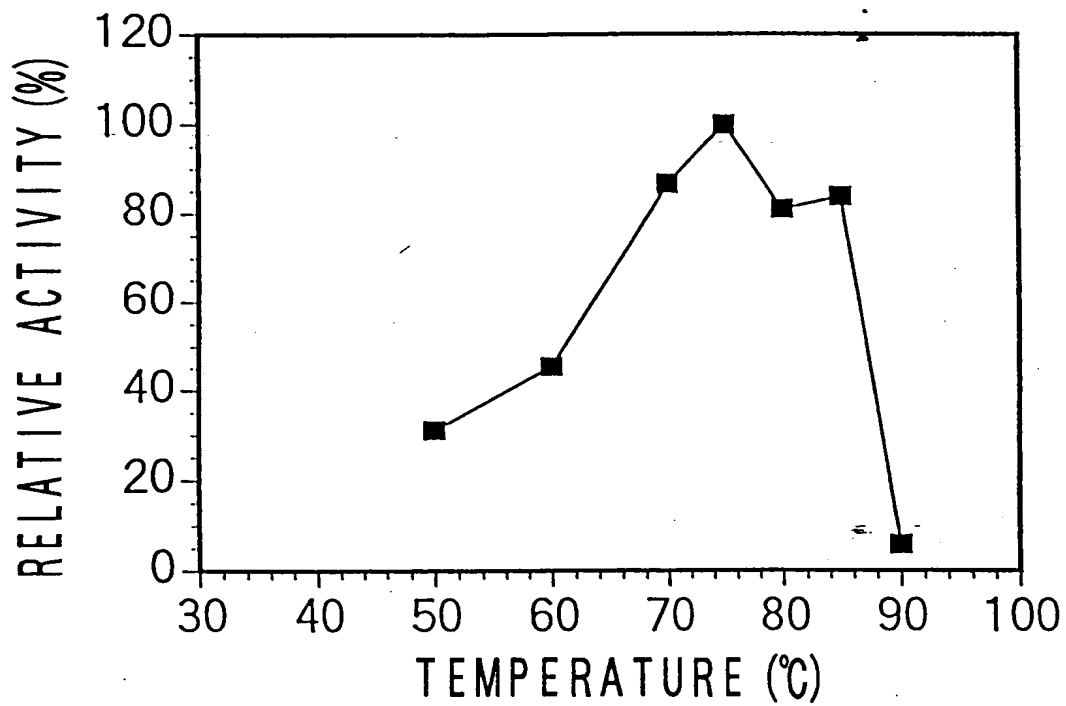


FIG. 14

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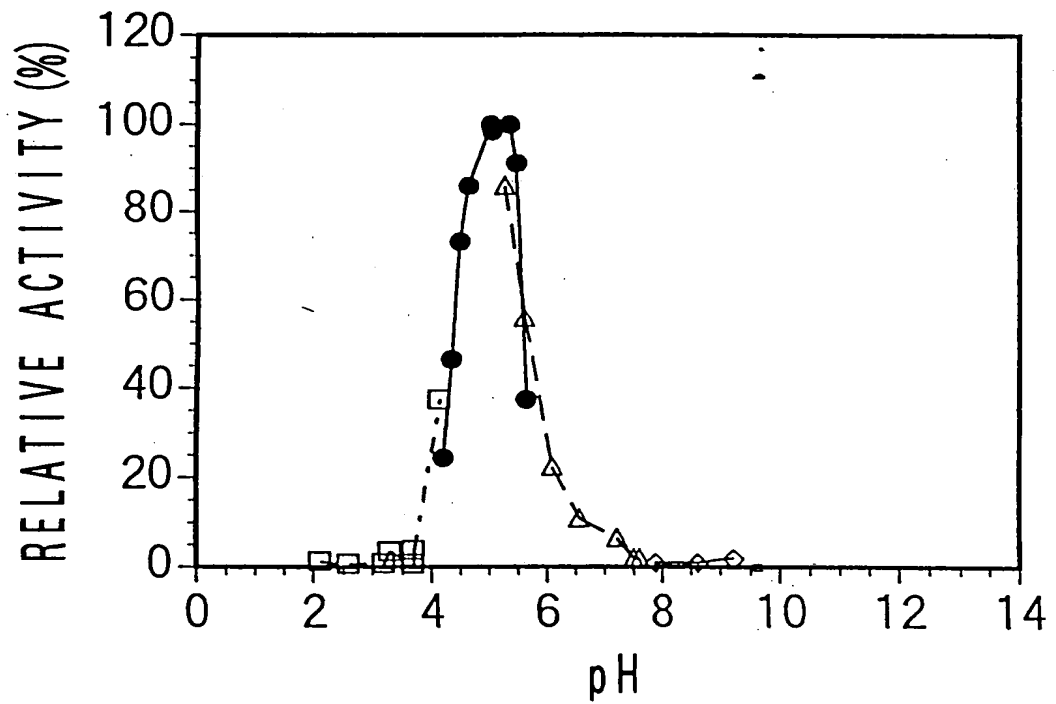


FIG. 15

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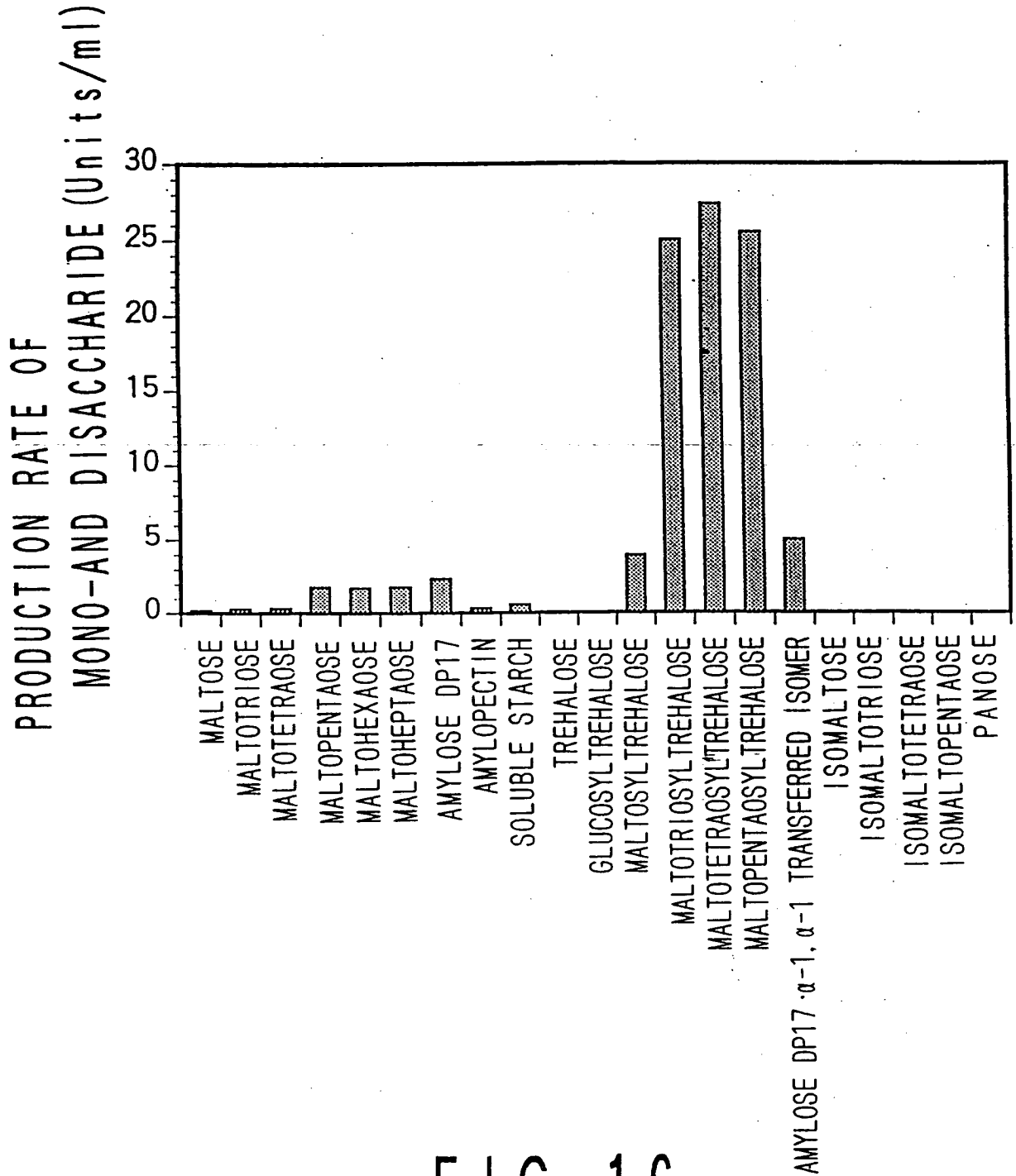


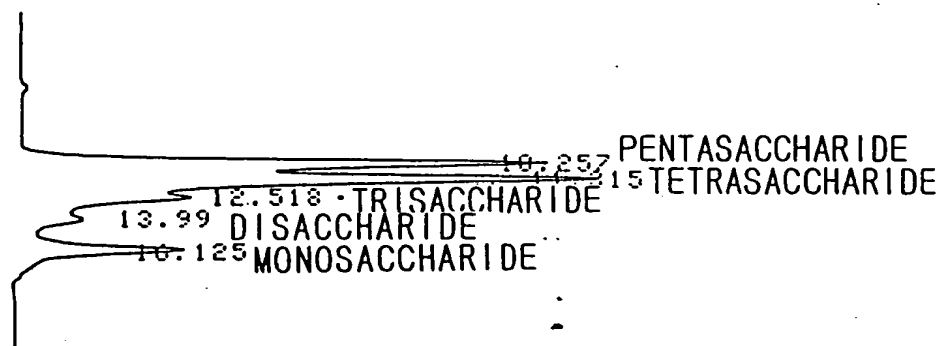
FIG. 16



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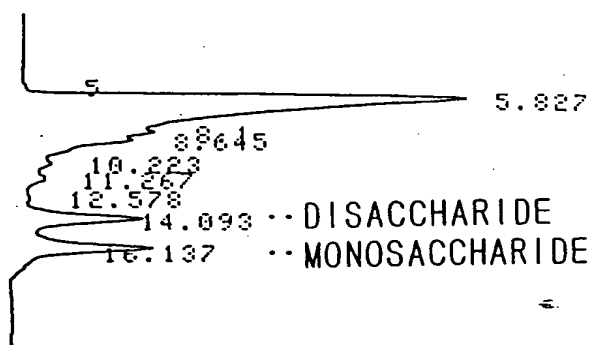
SUBSTRATE: MALTOPENTAOSE

FIG. 17A



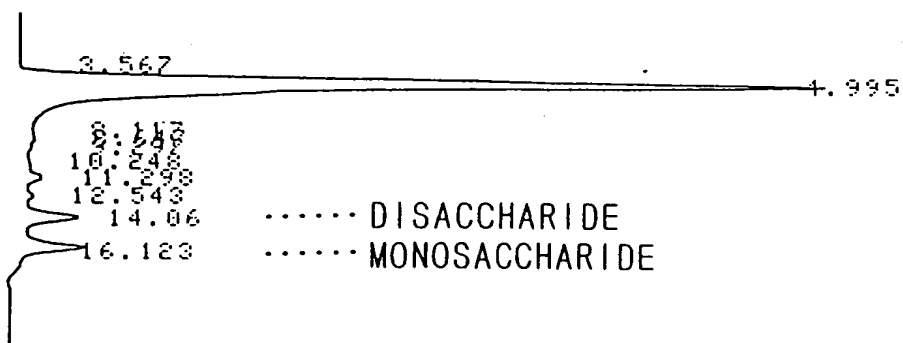
SUBSTRATE: AMYLOSE DP17

FIG. 17B



SUBSTRATE: SOLUBLE STARCH

FIG. 17C



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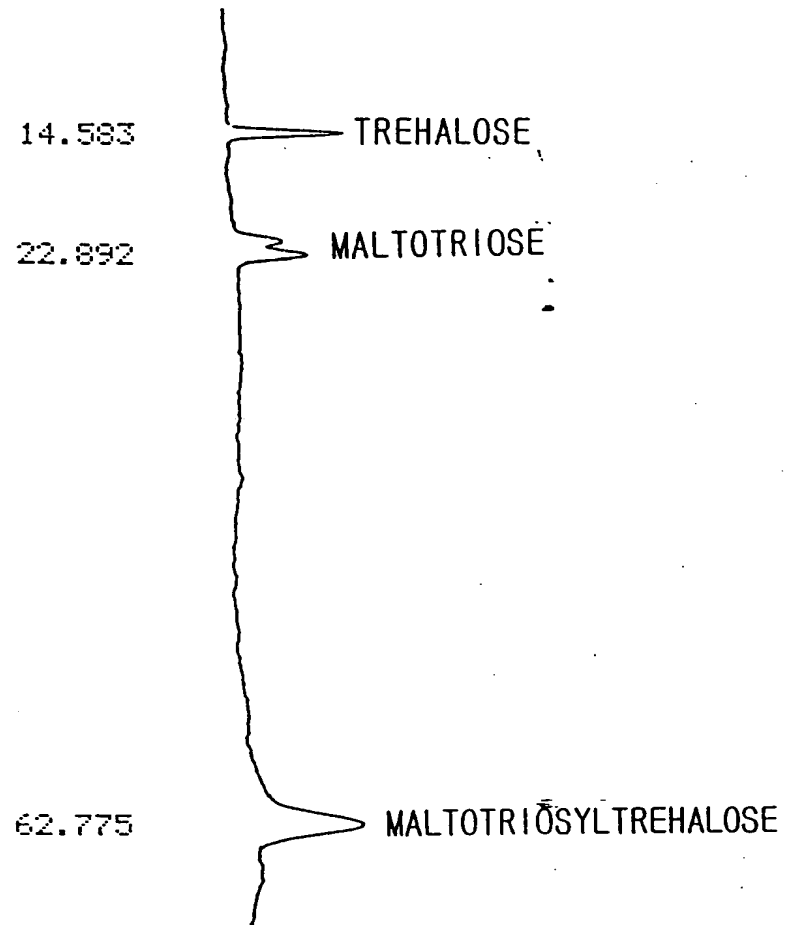


FIG. 18

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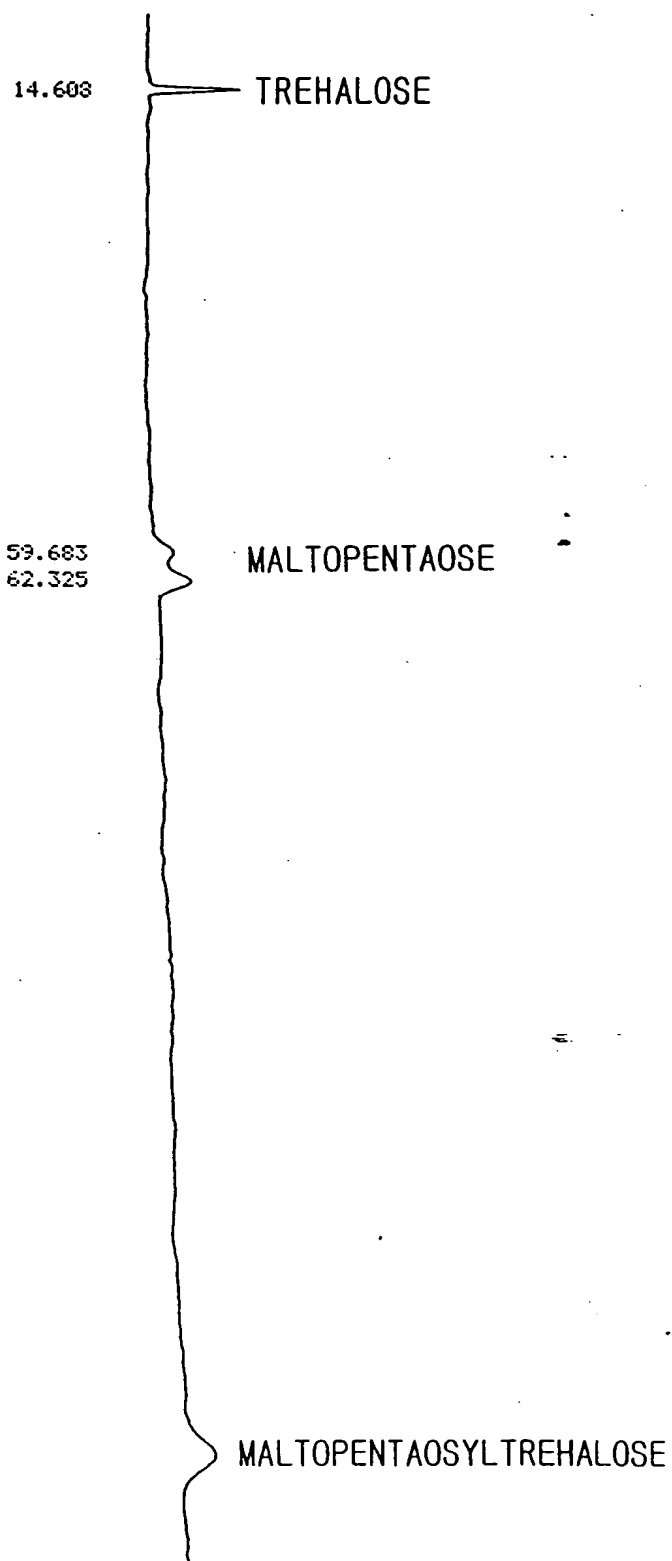


FIG. 19

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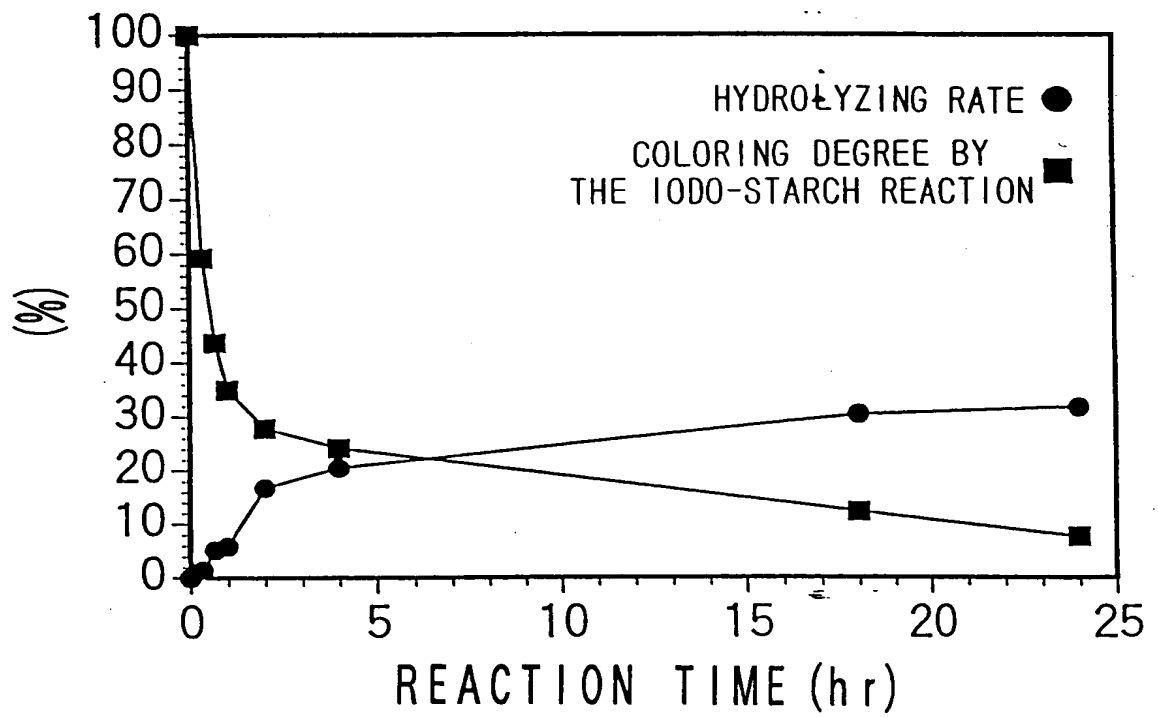


FIG. 20

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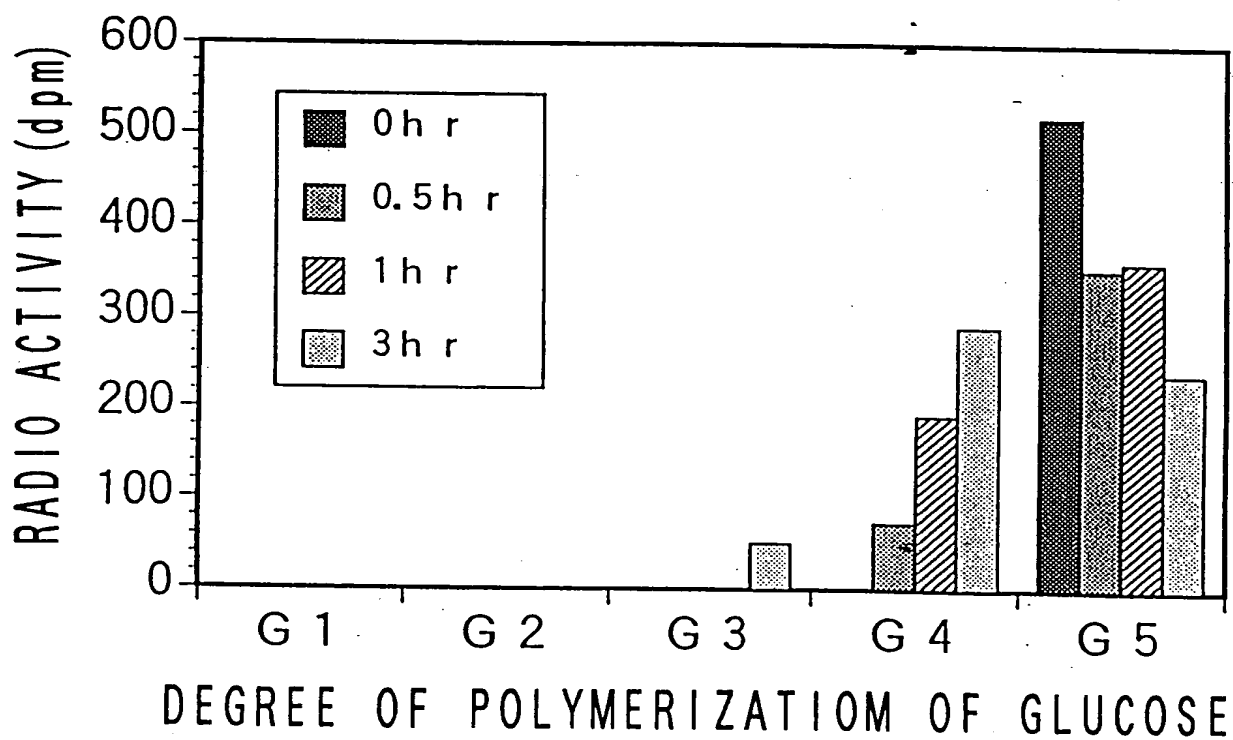


FIG. 21

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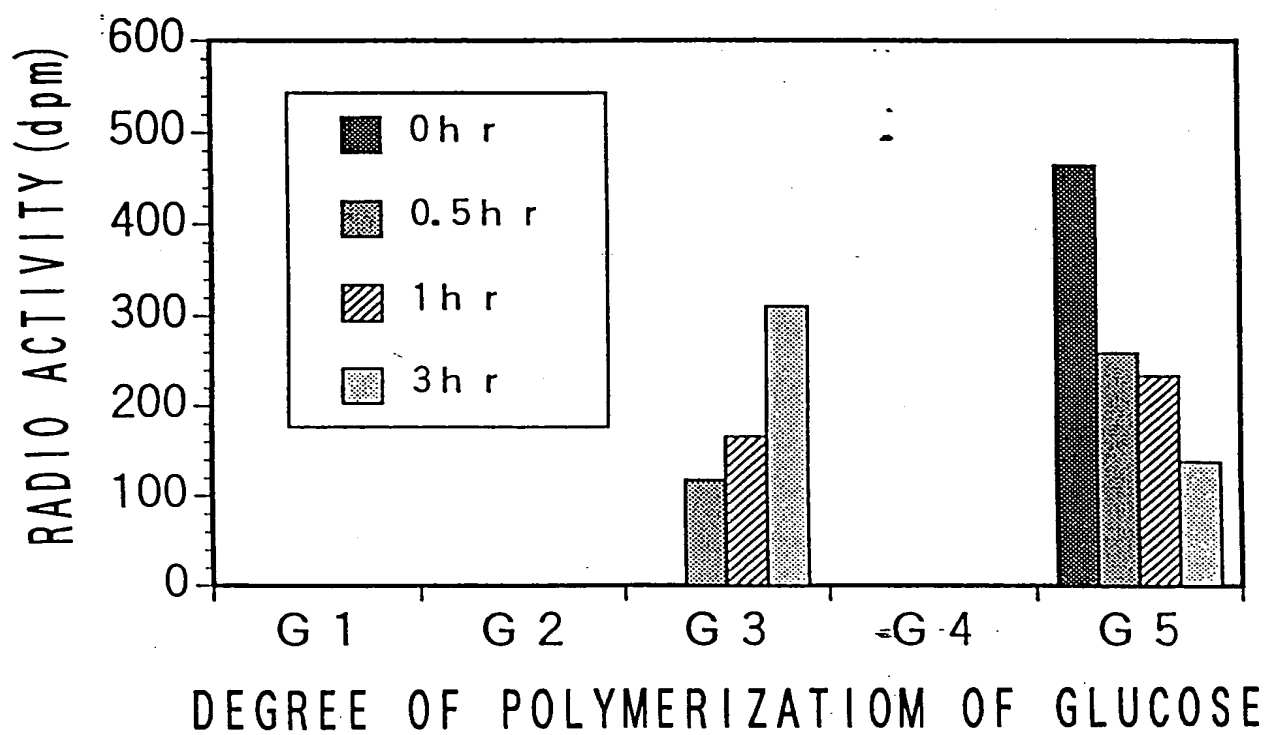


FIG. 22

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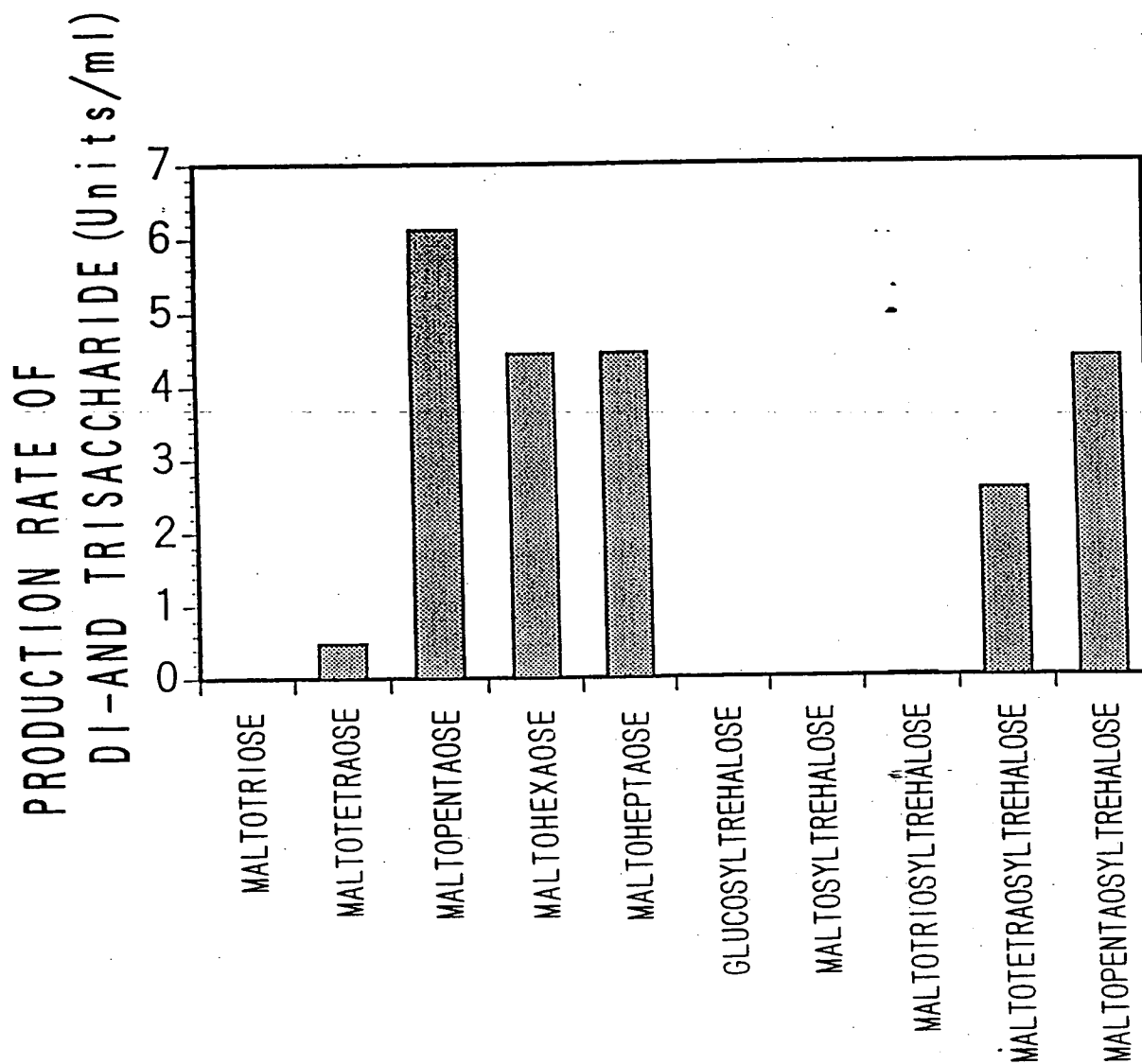


FIG. 23

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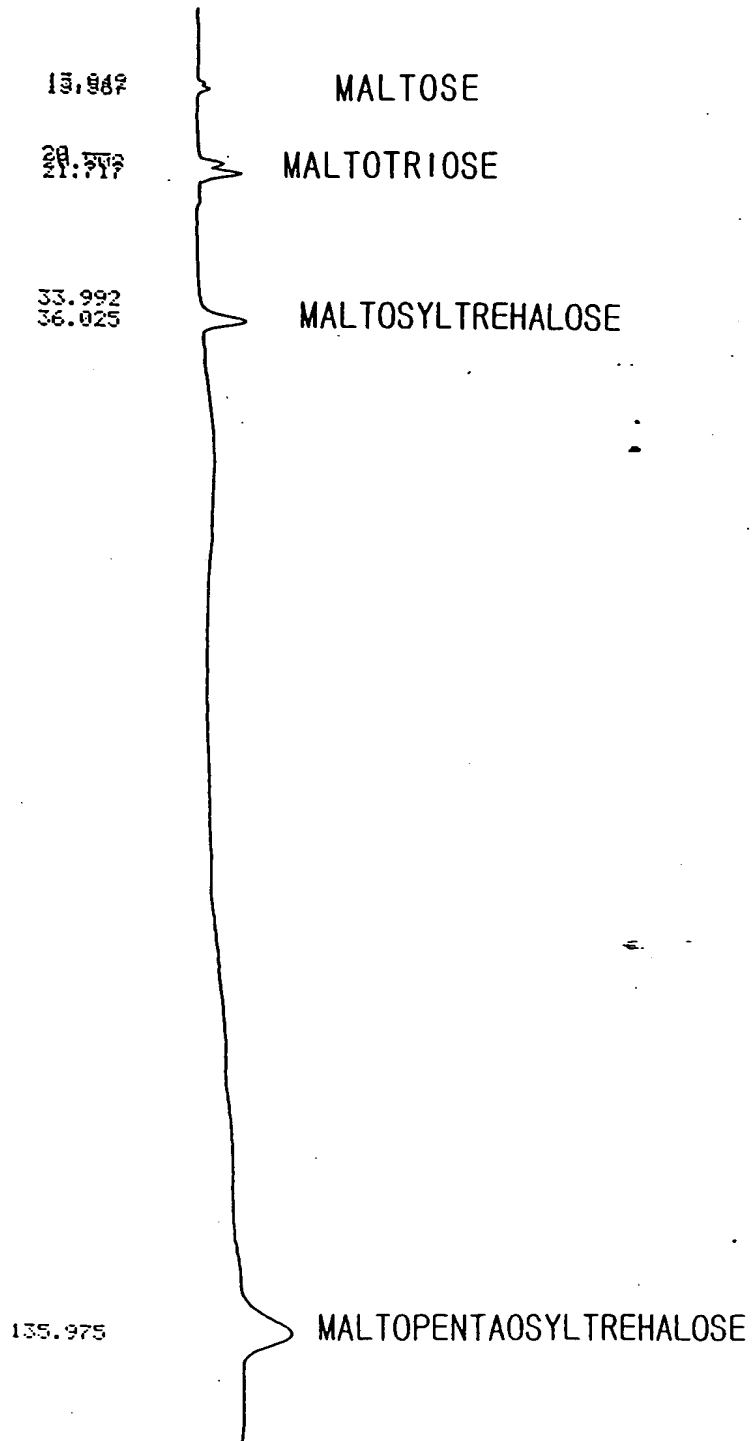


FIG. 24



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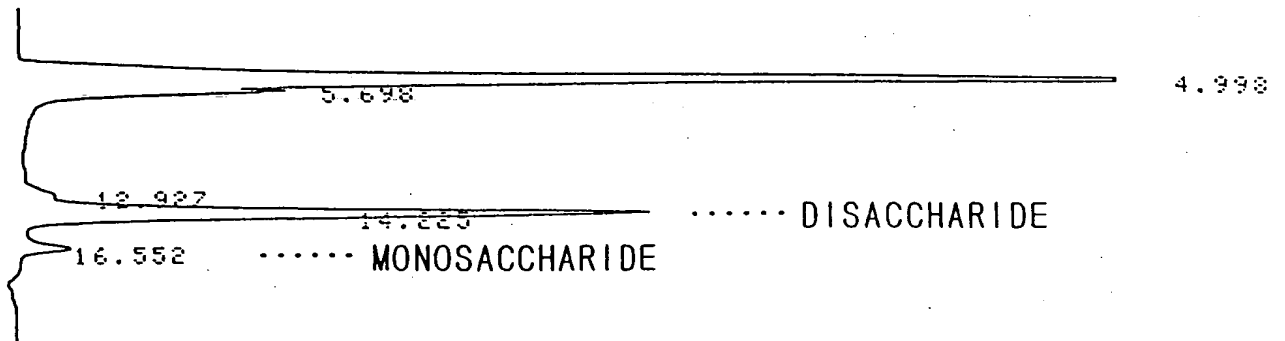
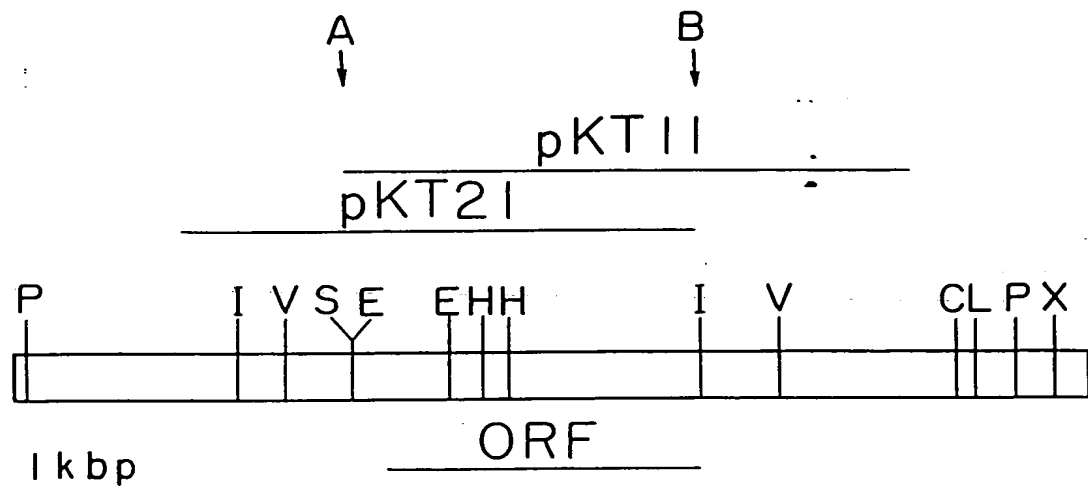


FIG. 25

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P: Pst I	E: EcoRI
I: EcoT22I	H: HincII
V: EcoRV	C: Sac I
S: Sph I	L: Sal I
	X: Xba I

FIG. 26

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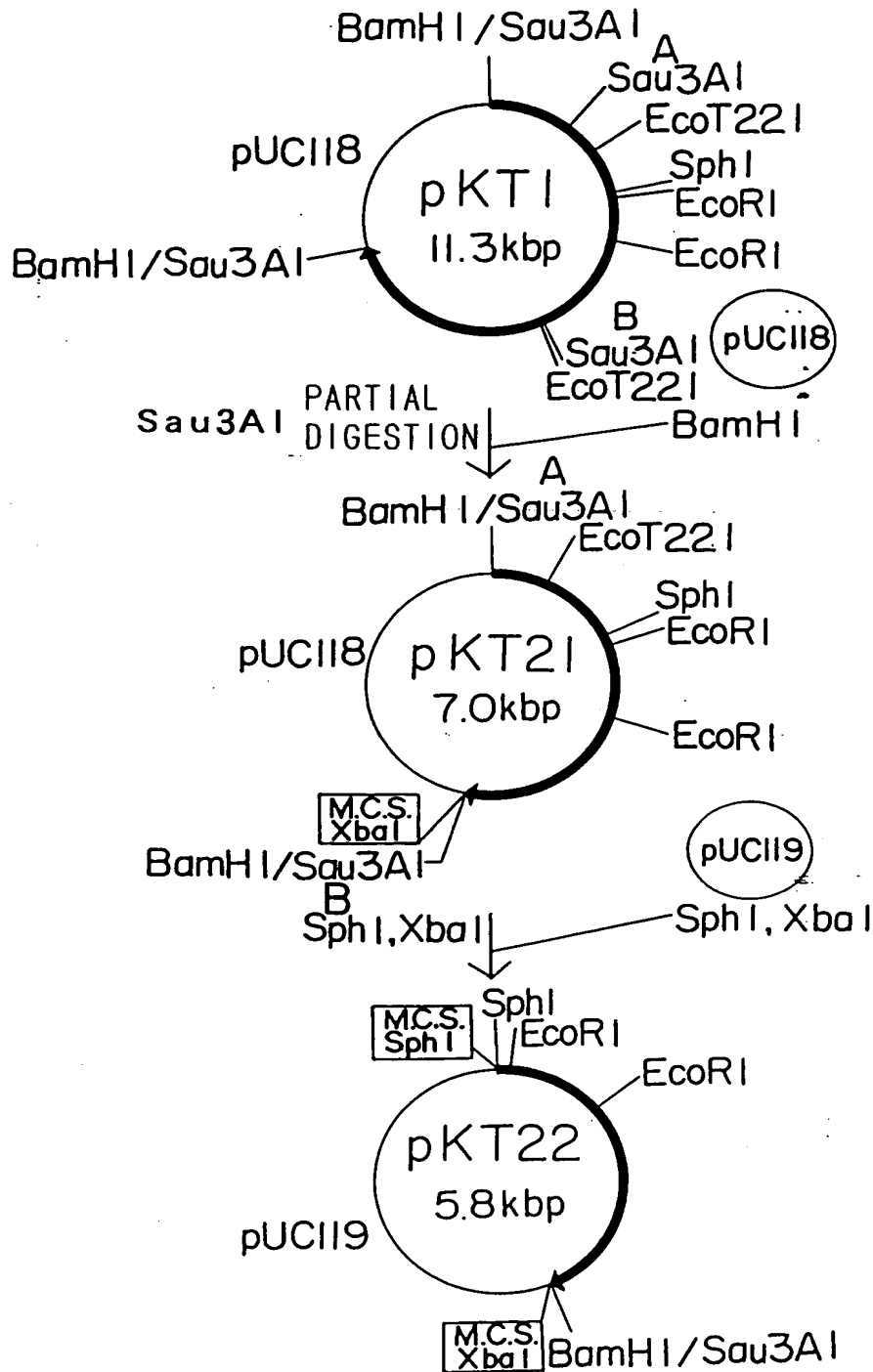
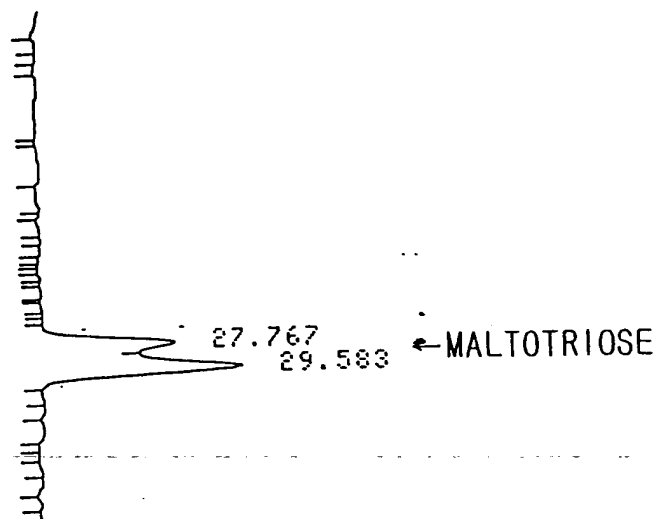


FIG. 27

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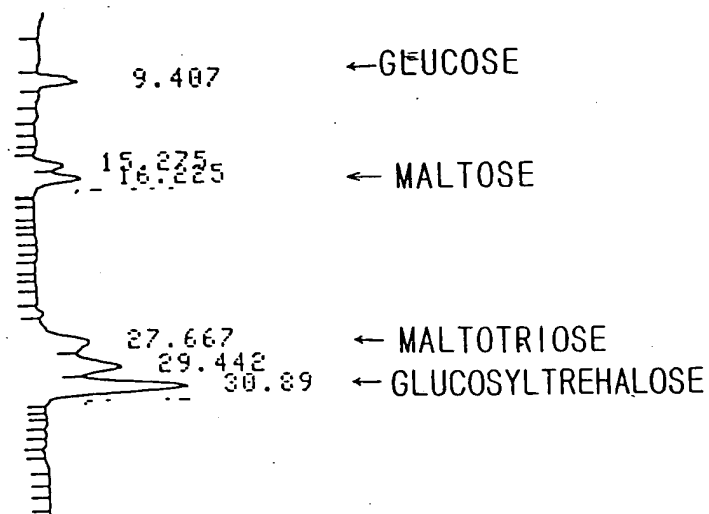
BEFORE ADDITION OF CRUDE ENZYME EXTRACT

FIG. 28A



AFTER ADDITION OF CRUDE ENZYME EXTRACT

FIG. 28B



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p09T1 INSERTED FRAGMENT

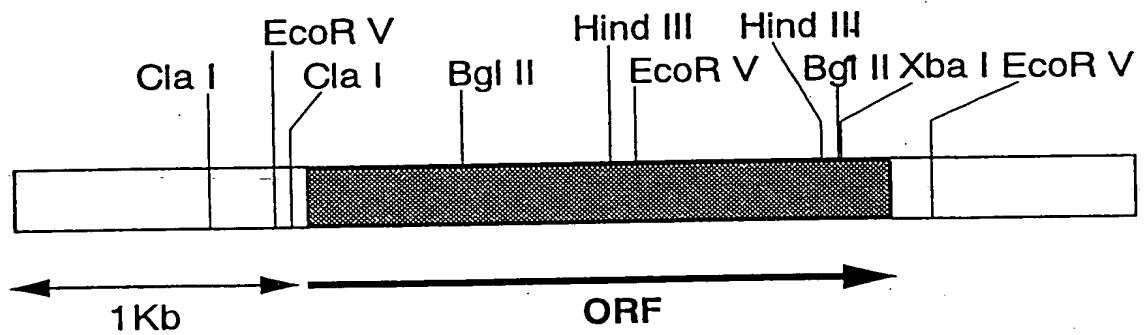
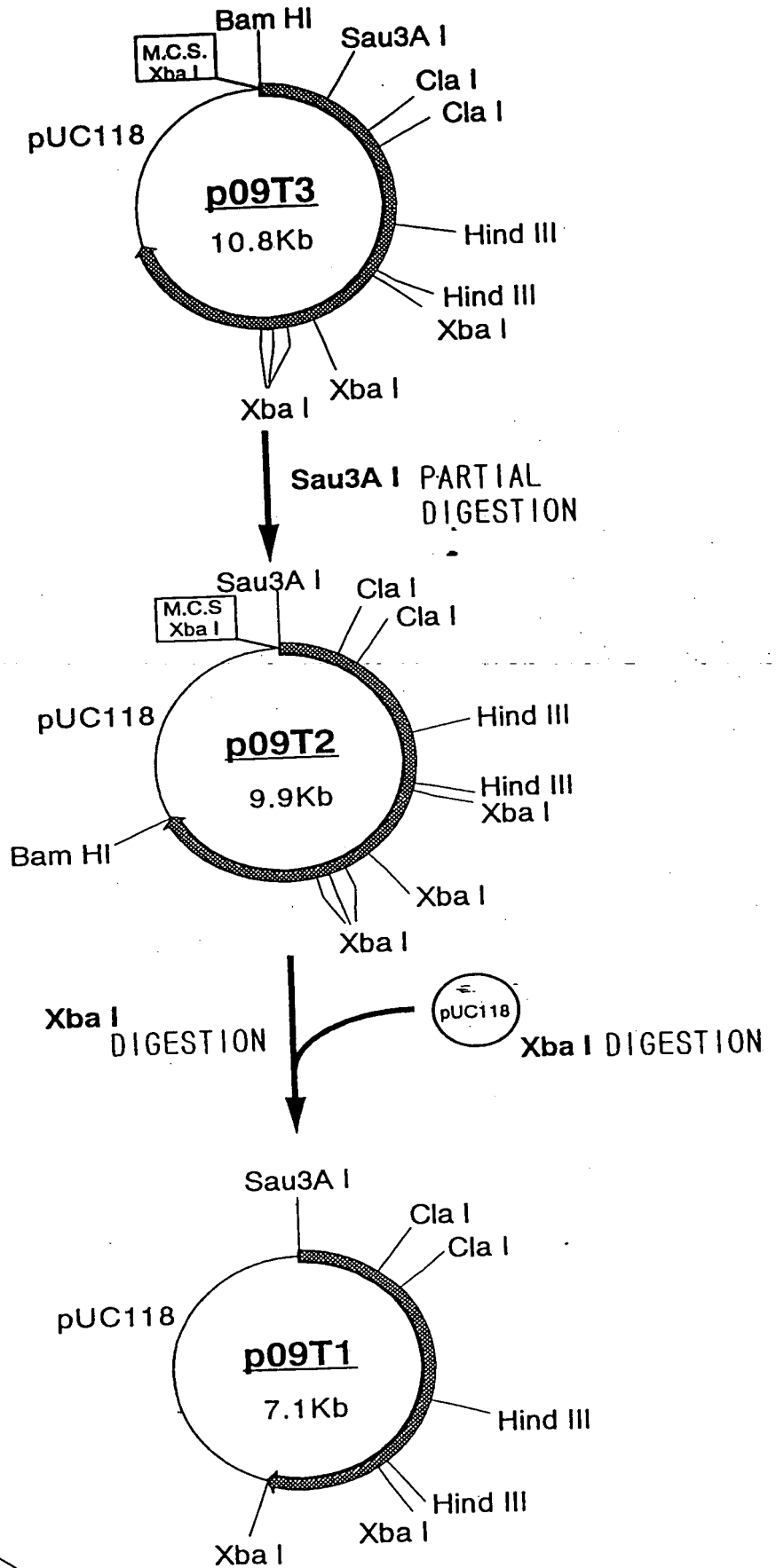


FIG. 29

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FIG. 30



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```
1' MASPGSNHGYDVIDHSRIND
  * * * * *
21' MIIGTYRLQLNKKFTFYDIIENLDYFKELGVSHLYLSPILKARPGSTHGYDVVDHSEINE
21' ELGGEKEYRRLIETAHTIGLGIIQDIVPNHMAVNSLNWRLMDVLKMGKSKYYTYFDFFP
  * * * * *
61' ELGGEEGCFKLVEAKSRGLEIIQDIVPNHMAVHHTNWRLMDLLKSWKNSKYNYFDHY-
  * * * * *
81' EDDKIRLPILGEDLDTVISKGLLKIVKDGDEY-----FLEYFKWKLPLTE---VG
  * * * * *
120' DDDKIILPILEDELDTVIDKGLIKLQKDNIEYRGLILPINDEGVEFLKRINCFDNSCLKK
  * * * * *
128' NDIYDTLQKQNYTLMSWKNP-PSYRRFFDVNTLIGVNEKDHVFQESHKILDLDVDGYR
  * * * * *
180' EDIKKLLLIQYYQLTYWKKGYPNYRRFFAVNDLIAVRVELDEVFRESHEIIAKLPVDGLR
  * * * * *
187' IDHIDGLYDPEKYINDLRSII-KNKIIIVEKILGFQEELK--LNSDGTGTYDFLNYSNLL
  * * * * *
240' IDHIDGLYNPKEYLDKLRQLVGNOKIYVEKILSINEKLRDDWKVDGTTGYDFLNYNMNL
  * * * * *
244' F--NFNQEIMDSIYENFTAEEKISISESIKKIKAQIIDELFSYEVKRLASQLGISYDILRD
  * * * * *
300' LVDGSGEEELTKFYENFIGRKNIDELIIQSKKLVANQLFKGDIERLSKLLNVNYDYLVD
  * * * * *
302' YLSCIDVYRTYANQIVKECDKTNEIEEATK-RNPEAYTKLQQYMPAVYAKAYEDTFLFRY
  * * * * *
360' FLACMKKYRTY--LPYEDINGIRECDKEGKLKDEKGIMRLQQYMPAIFAKGYEDTTLFYI
  * * * * *
361' NRLISINEVGSDLRYYKISPDQFHVFNQRRGKITLNATSTHDTKFSEDVRMKISVLSEF
  * * * * *
418' NRLISLNEVGSDLRRFSLSIKDFHNFNLSRVNTISMNTLSTHDTKFSEDVRARISVLSEI
  * * * * *
421' PEEWKKNKVEEWSIINPKVSRNDEYRYQVLVGSFYEGFSNDFKERIKQHMIKSVREAKI
  * * * * *
478' PKWEERVYIYWHDLRLPNIDKNDEYRFYQTLVGS-YEGF--DNKERIKNHMIKVIREAKV
  * * * * *
481' NTSWRNQNKEYENRVMELVEETFTNKDFIKSFMKFESKIRRIGMIKSLSLVALKIMSAGI
  * * * * *
535' HTTWENPNIEYEKKVLGFIDEVFENSFRNDFENFEKKIYVFGYMKSLIATTLRFLSPGV
  * * * * *
541' PDFYQGTEIWRYLLTDPDNRPVDFKKLHEILEKSKKFEKNMLESMDGRIKMYLTYKLL
  * * * * *
595' PDIIYQGTEVWRFLLTDPDNRPVDFKKLKELL---NNLTEKNLE-LSDPRVKMLYVKLL
  * * * * *
601' SLRKQLAEDFLKGEYKGLDLEEGLCGFIRFNKILVIAIKTGSVNYKLEEGAIYTDVLT
  * * * * *
651' QLRR----EYSLNDYKLPF-----GFQR-GKVAVLFSPIVTREVKEKISIRQKSVDWIR
  * * * * *
661' GEEIKK-EVQINELPRILVRM
  * * * * *
701' NEEISSGEYNLSELIGKHKVVILTEKRE
```

FIG. 31

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816' ATGGCTTCGCCAGGAAGTA-ACCATGGGTACGATGTAA  
\* \* \* \* \*  
455" AAGGCTAGACCAGGGAGCACTCACGGCTACG--ATGTAGTAGATCAT-AGTGAAATTAAT  
853' TAGATCATTCAAGGATAAACGATGAAC-TTGGAGGAG---AGAAAGAATACAGGAGATTA  
\* \* \* \* \*  
512" GAGGAATTAGGAGGAGAAAGAGGGGTGCTTTAACTAGTTAAGGAAGCTAAGAGTAGAGGT  
909' ATAGAGACAGCTCATACTATTGGATTAGGTATTAT-ACAGGACATAGTACCAAAT-CACA  
\* \* \* \* \*  
572" TTAGAAATCATACAAGATATAGTGCCAAATCATATGGCGGTACATCATACTAATTGGAGA  
967' TGGCTGTAAATTCTCTA-AATTGG-CGACTAATGGATGTATTAATAATGGGTAAAAAGAG  
\* \* \* \* \*  
632" CTTATGGATCTGTAAAGAGTTGGAAGAATAGTAAATACTATAACTATT-TTGATCACTA  
1025' TAAATATTATACGTACTTTGACTTTTCCAGAAAGATGA-TAAGATACGATTACCCATAT  
\* \* \* \* \*  
691" CGATGATGACAAGATAATCCTCCCAATACTTGAGGACGAGTTGGATACCGTT--ATAGAT  
1084' TAGGAGAAGATTTAGATACAG--TGATAAGTAAAGGTTTATTAAGATAGTAAAGATGG  
\* \* \* \* \*  
749" AAGGGATTGATAAAACTACAGAAGGATAATATAGAGTACAG-AGGGCTTATATTACCTAT  
1142' AGATGAATATTTCTAGAATATTTCAAATGGA--AACT--TCCTCTAACAGAGGTTGGAA  
\* \* \* \* \*  
808" AAATGATGAAGGAGTTGAATTCTTGAAAAGGATTAATTGCTTTGATAATTCATGTTTAA  
1198' -----ATGATATATACGACACTTTACAAAAACAGAATTATACCCTAATGTCTTGGAA---  
\* \* \* \* \*  
868" GAAAGAGGATATAAGAAATTACTATTAATACAATATTATCAGCTAACTTACTGGAAGAA  
1250' AAATCCTCCTAGCTATAGACGATTCTTCGATGTTAATACTTTAATAGGAGTAAATGTCGA  
\* \* \* \* \*  
928" AGGTTATCCAACTATAGGAGATTTTTTCGAGTAAATGATTTGATAGCTGTTAGGGTAGA  
1310' AAAAGATCACGTATTTCAAGAGTCCCATTCAAAGATCTTAGATTTAGATGTTGATGGCTA  
\* \* \* \* \*  
988" ATTGGATGAAGTATTTAGAGAGTCCCATGAGATAATTGCTAAGCTACCAAGTTGACGGTTT  
1370' TAGAATTGATCATATTGATGGATTATATGATCCTGAGAAATATATTAATGACCT--GA-G  
\* \* \* \* \*  
1048" AAGAATTGACCACATAGATGGACTATATAACCCTAAGGAGTATTTAGATAAGCTAAGACA  
1427' GTCAATAATTAATAAATAAATAATTATTGTAGAAAAAATCTGGGATTTGAGGAGGAATT  
\* \* \* \* \*  
1108" GTTAGTAGGAAATGATAAGATAATATACGTAGAGAAGATATTGTCAATCAACGAGAAATT  
1487' AA-----AATTAAATTCAGATGGAACTACAGGATATGACTTCTTAAATTACTCCAATT  
\* \* \* \* \*  
1168" AAGAGATGATTGGAAGTAGATGGGACTACTGGATATGATTTCTTGAACCTACGTTAATAT  
1541' ACTGTT--TA-ATTTAATCAAGA-GA-TAATGGAC-AGTATATATGAGAATTTACAGC  
\* \* \* \* \*  
1228" GCTATTAGTAGATGGAAGTGGTGAGGAGGAGTTAACTAAGTTTTATGAGAATTTTATTGG  
1595' GGAGAAAAATCTATAAGTGAAAGTATAAGAAAAATAAGCGCAAATAATTGATGAGCT  
\* \* \* \* \*  
1288" AAGGAAAAATCAATATAGACGAGTTAATAATAAAAGTAAAAAATAGTTGCAAAATCAGTT  
1655' ATTTAGTTATGAAGTTAAAAAGATTAGCATCACAAGTGAAGTATGCTACGATATATTGAG  
\* \* \* \* \*  
1348" ATTTAAAGGTGACATTGAAAGATTAAGCAAGTTACTGAACGTTAATTACGAT-TATTTAG  
1715' -AGATTACCTTTCTTGATAGATGTGTACAGAACTTATGCTAATCAGAT-TGTAAGAGAG  
\* \* \* \* \*  
1407" TAGATTTTCTAGCATGTATGAAAAAATACAGGACTTAT--TTACCATATGAGGATATTAA

FIG. 32A



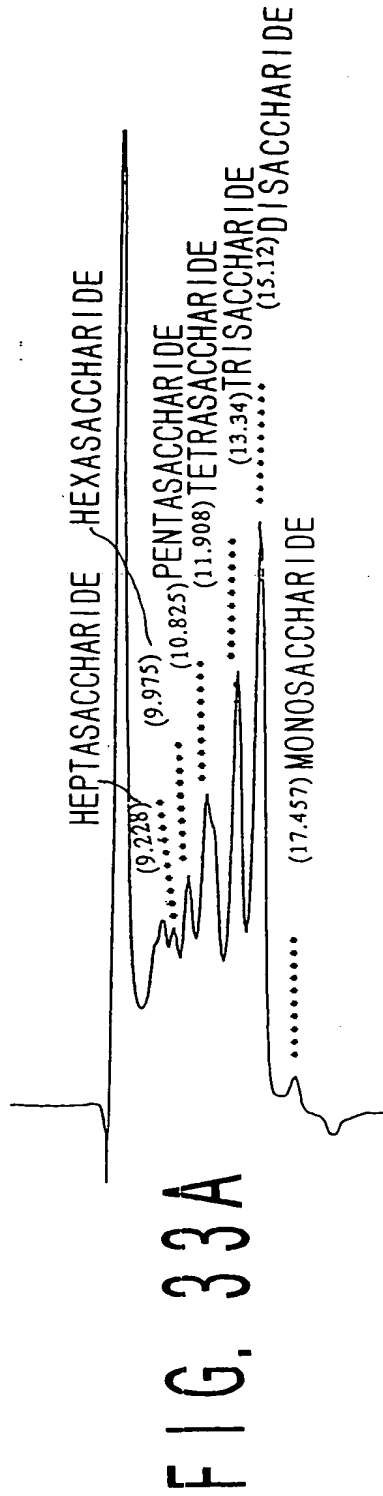
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1773' TGTGATAAGACCAATGAGATAGAGGAAAGCAACCAAAAGAAATCCAGAGGCTTATACTAAA  
\* \* \* \* \*  
1465" CGGAATAAG-GGAATGCGATA-AGGAGGGAAAGTTAAAGATGAAAAAGGAATCATGAGA  
1833' TTACAACAATATATGCCAGCAGTATACGCTAAAGCTTATGAAGATACTTCTCTTTAGA  
\* \* \* \* \*  
1523" CTCCAACAATACATGCCAGCAATCTTCGCTAAGGGCTATGAGGATACTACCTCTTCATC  
1893' TACAATAGATTAATATCCATAAATGAGGTTGGAAGCGATTTACGATATTATAAGATATCG  
\* \* \* \* \*  
1583" TACAATAGATTAATTTCCCTTAACGAGGTTGGGAGCGACCTAAGA-AGATTCAGTTTAAG  
1953' CCT-GATCAGTTTCATGTATTTAATCAAAAAAGAGGAAAAATCACACTAAATGCCAC  
\* \* \* \* \*  
1642" CATCAAAGACTTTTATACTTTAACCCTAAGCAGAGTAAATACCATATCAATGAACACTCT  
2012' TAGCACACATGATACTAAGTTTGTAGGATGTAAGGATGAAAAATAGTGTATTAAGTGA  
\* \* \* \* \*  
1702" TTCCACTCATGATACTAAATTCAGTGAAGACGTTAGAGCTAGAATATCAGTACTATCTGA  
2072' ATTTCTGAAGAATGAAAAATAAGGTCGAGGAATGGCATAGTATCATAAATCCAAAGGT  
\* \* \* \* \*  
1762" GATACCAAAGGAGTGGGAGGAGAGGGTAATATACTGGCATGATTTGTTAAGGCCAAATAT  
2132' ATCAAGAAATGATGAATATAGATATTATCAGGTTTTAGTGGGAAGTTTTATGAGGGATT  
\* \* \* \* \*  
1822" TGATAAAACGATGAGTATAGATTTTATCAAACACTTGTGGGAAG---TTACGAGGGATT  
2192' CTCTAATGATTTTAAGGAGAGAATAAAGCAACATATGATAAAAGTGTGAGAGAAGCTAA  
\* \* \* \* \*  
1879" ----T--GATAATAAGGAGAGAATTAAGAACCACATGATTAAGGTCATAAGAGAAGCTAA  
2252' GATAAATACCTCATGGAGAAATCAAAATAAAGAATATGAAAAATAGGTAATGGAATTAGT  
\* \* \* \* \*  
1933" GGTACATACAACGTGGGAAATCCTAATATAGAGTATGAAAAGAAAGTTCTGGGTTTCAT  
2312' GGAAGAACTTTTACCAATAAGGATTTTCATTAAGGTTTCATGAAATTTGAAAGTAAGAT  
\* \* \* \* \*  
1993" AGATGAAGTGTTTCGAGAACGTAATTTTAGAAATGATTTTGAAATTTTGAAAGAAAT  
2372' AAGAAGGATAGGGATGATTAAGAGCTTATCCTTGGTCGCATTAAAAATTATGTCAGCCGG  
\* \* \* \* \*  
2053" AGTTTATTTTCGTTATATGAAATCATTAAATCGCAACGACACTTAGGTTCTTCGCCCGG  
2432' TATACCTGATTTTATCAGGGAACAGAAATATGGCGATATTTACTTACAGATCCAGATAA  
\* \* \* \* \*  
2113" TGTACCAGATATTTATCAAGGAACTGAAGTTTGGAGATTCTTACTTACAGACCCAGATAA  
2492' CAGAGTCCAGTGGATTTTAAGAAATTACACGAAATATTAGAAAAATCCAAAAATTTGA  
\* \* \* \* \*  
2173" CAGAATGCCGTTGGATTTCAAGAACTAAAGGAATTATTAAATAATTTGACTGAAAAGAA  
2552' AAAAAATATGTTAGAGTCTATGGAC--GATGGAAGA-ATTAAGATGTATTTAACATATAA  
\* \* \* \* \*  
2233" CTTAGAACTCTCAGATCCAAGAGTCAAAATGTTATATGTTAAGAAAT-TGCTACAGCTTA  
2609' GCTTTTATCCCTAAGAAAAAGTTGGCTGAGGATTTTTTAAAGGGCGAGTATAAGGG---  
\* \* \* \* \*  
2292" GAAGAGAGTACTCACTAAACGATT--ATAAACCAATTGCCCTTTGGCTTCCAAAGGGGAAA  
2656' ATTAGATCTAGAAGAAGGACTATGTGGGTTA-TTAGGTTTAACAAAAATTTGGTAATAA  
\* \* \* \* \*  
2350" AGTAGCTGTCTTTTCTACCAATAGTGACTAGGGAGGTTAAAGAGAAAAATTAGT-ATAA  
2725' TAAAAACCAAGGGAAGTGTTAATTACAACTGAACTTGAAGAGGGAGCAATTTACACAG  
\* \* \* \* \*  
2409" GGCAAA-AAAGCGTTGATTGGATCAGAAATGAGGAAATTAGTAGTGGAGAAT---ACAA  
2785' ATGTATTGACAGGAGAAGAAATTAAGGAGGTAAGGATTAATGAGCTACCTAGGATAC  
\* \* \* \* \*  
2464" TTTAAGTGAGTTGATTGGGAAGCATAAAGTCGTTATA-TTAACTGAAAAAGGGAG

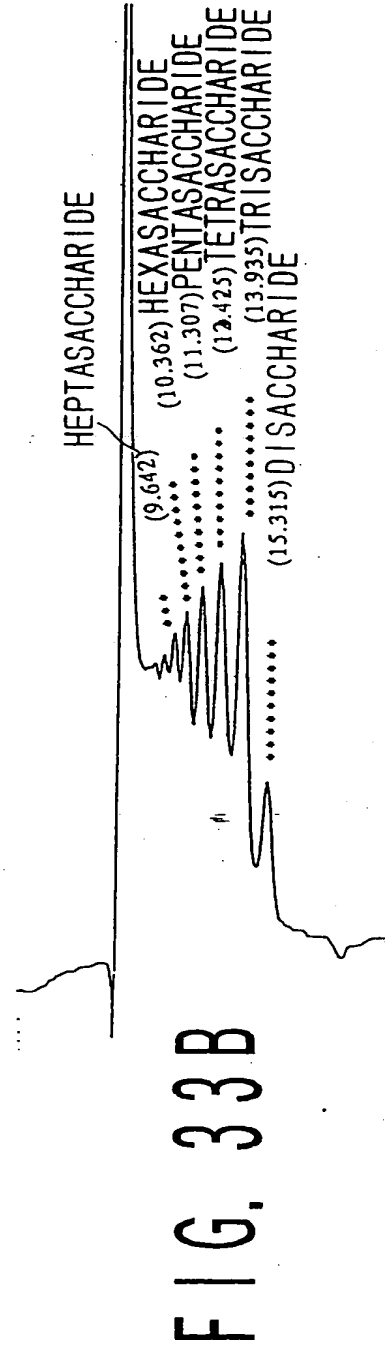
FIG. 32B

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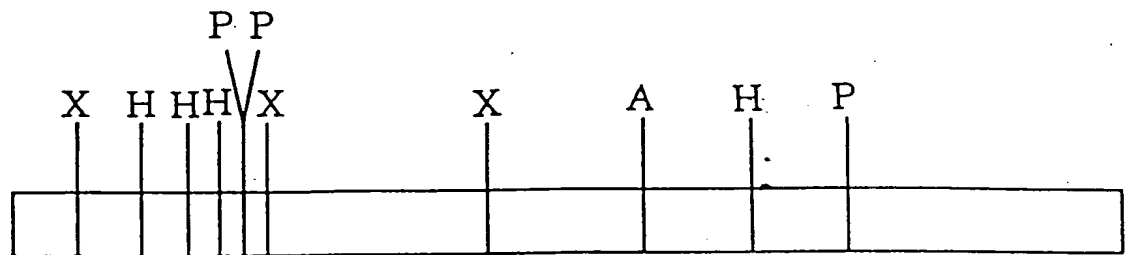
IN THE PRESENCE OF THE ENZYME



CONTROL



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ORF

1 k b p

p K A 2

A : A c c I  
 H : H i n c I I  
 P : P s t I  
 X : X b a I

FIG. 34

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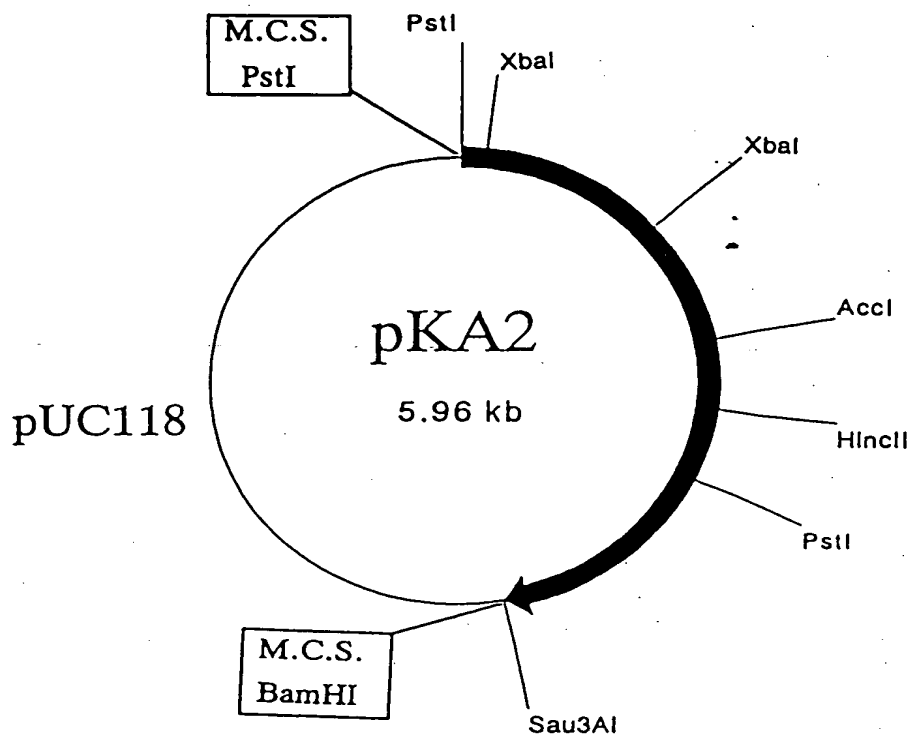


FIG. 35

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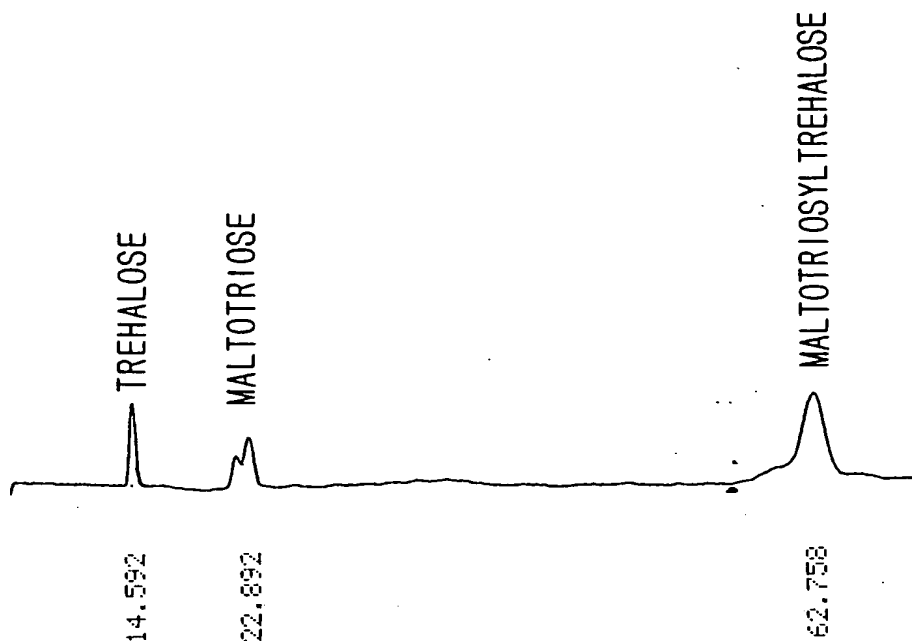


FIG. 36A

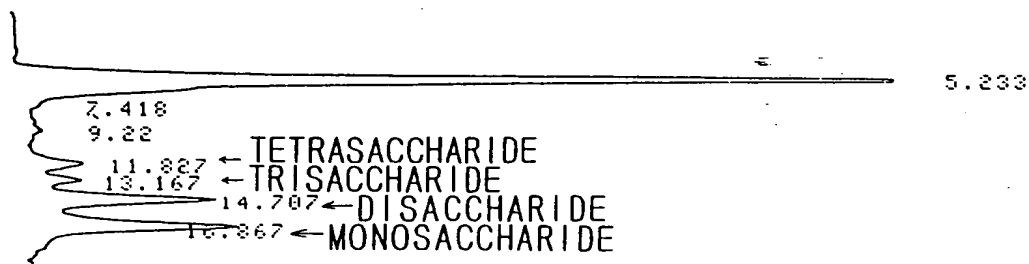


FIG. 36B

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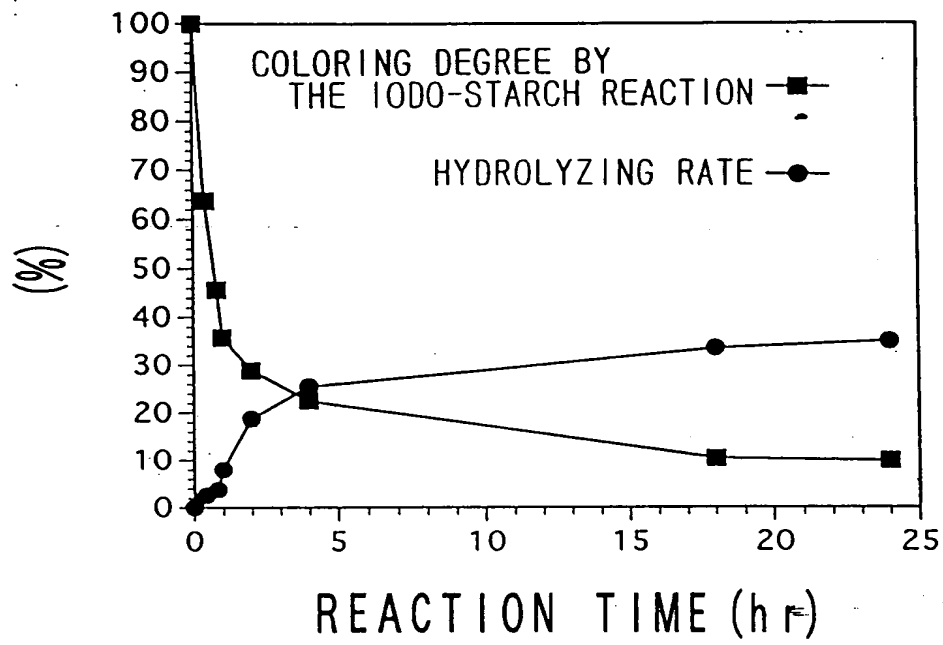


FIG. 37

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p09A1 INSERTED FRAGMENT

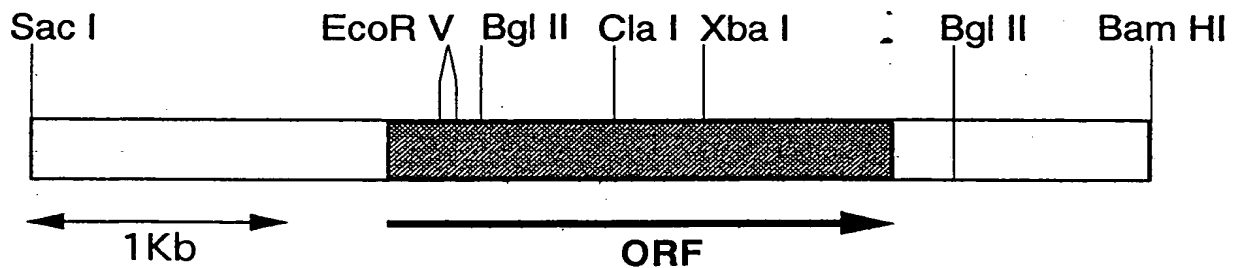


FIG. 38

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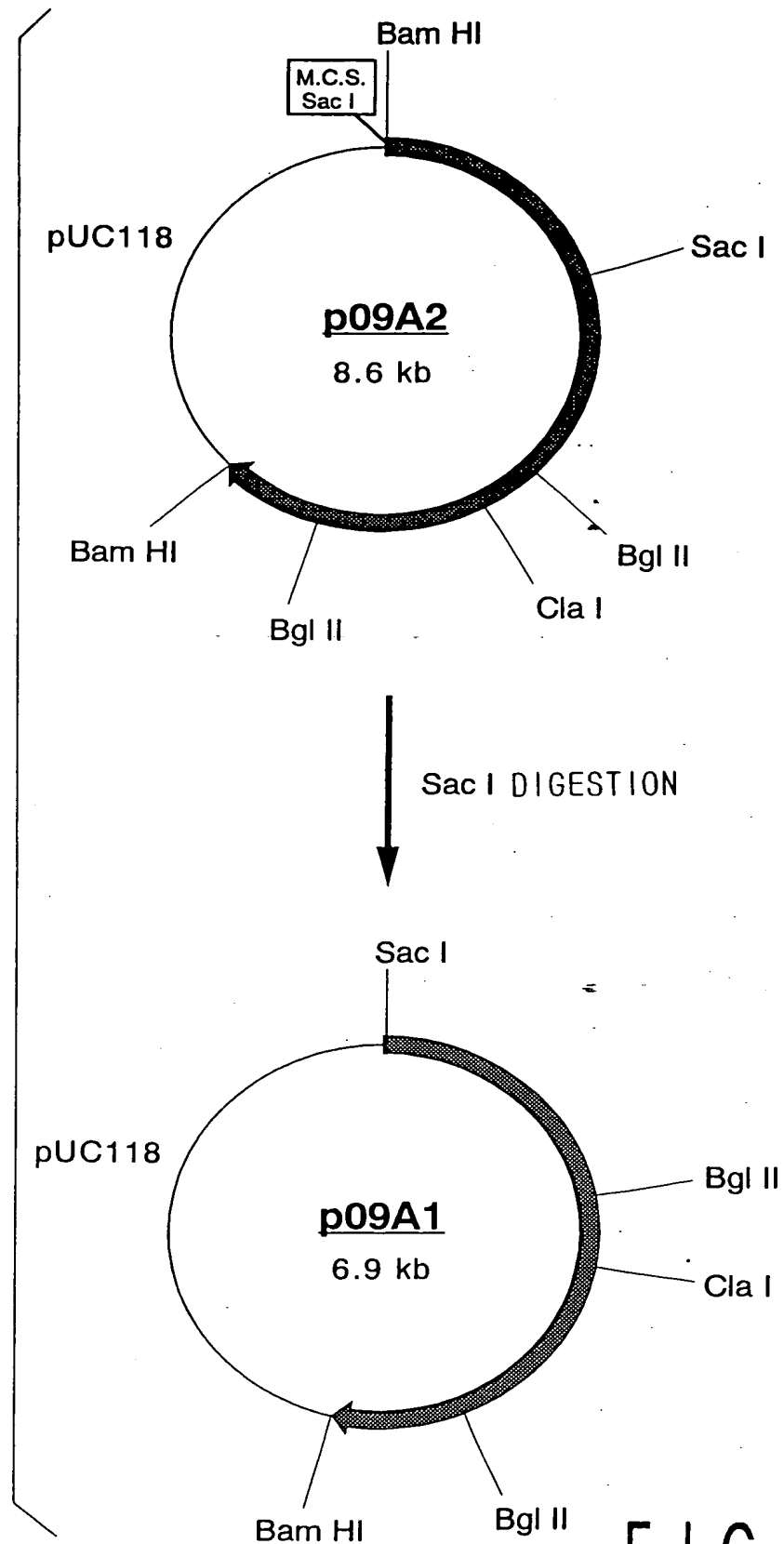


FIG. 39



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1' MFSFGGNIENKNGIFKLWAPYVNSVKLK-LSKKLIPMEKNDEGFFEVEIDDIEENLTYSY  
\* \* \* \* \*  
1" TFAYKIDGNEVIFTLWAPYQKSVKLVLEKGLYEMERDEKGYFTITLNNVKVRDRYKY  
60' IIEDKREIPDPASRYQPLGVHDKSQLIRTDYQILDGKVKIEDLIIYELHVGTFSSQEGNF  
\* \* \* \* \*  
59" VLDDASEIPDPASRYQPEGVHGSPQIIQESKEFNNETFLKKEDLIIYEIHVGTFTPEGTF  
120' KGVIEKLDYLDLKITGIELMPVAQFPGNRDWGYDGVFLYAVQNTYGGPWELAKLVNEAH  
\* \* \* \* \*  
119" EGVIRKLDYLDLKITAEIMPIAQFPGKRDWGYDGVLYAVQNSYGGPEGFRKLVDIAH  
180' KRGIAVILDVVYNHIGPEGNYLLGLGPYFSDRYKTPWGLTFNFDDRGCQVRKFILENVE  
\* \* \* \* \*  
179" KKGLGVILDVVYNHVGPENYMKLGPYFSQKYKTPWGLTFNFDDAESDEVKFILENVE  
240' YWFKTFKIDGLRLDAVHAIFDNSPKHILQEIAEKHQLGKFVIAESDLNDPKIV--KDDC  
\* \* \* \* \*  
239" YWIKYVNDGFRLLDAVHAIDTSPKHILEEIAVHVHKNRIVIAESDLNDRVVPKKEK  
298' GYKIDAQWDDFHHAHVAFITKEKDYYYQDFGRIEDIEKTFKDVFVYDGKYSRYRGRTHG  
\* \* \* \* \*  
299" GYNIDAQWDDFHHSIHAYLTGERQGYTDFGNLDDIVKSYKDVFVYDGKYSNFRKTHG  
358' APVGDLPFRKFVVFQNHQVGNRGNGERLSILTDKTTYLMAATLYILSPYIPLIFMGEE  
\* \* \* \* \*  
359" EPVGELDGCNFFVYIQNHQVGNRGKGERIILVDRESYKIAAALYLLSPYIPMIFMGEE  
418' YYETNPFFFFSDFSDPVLKGVREGRLKENNQMDPQSEEAFLKSKLSWKIDEEVLDYK  
\* \* \* \* \*  
419" YGEENPFYFFSDFSDSLIQVREGGRKKENGQDTPQDESTFNASKLSWKIDEEIFSFK  
478' QLINIRKRYN-NCKRVKEVRREGNCITLIMEKIGIIASFDDIVINSKITGNLLIGI--GF  
\* \* \* \* \*  
479" ILIKMRKELSIACORRVNVNNGENWLIKGREYFSLYVFSKSSIEVKYSGTLLLSNNSF  
535' PKKLKDELIVNRGVGVYQLE  
\* \* \* \* \*  
539" PQHIEEGK-YEFDKGFALYKL

FIG. 40

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1176' ATGTTTTTCGTTCCGGTGGAATAATTGAAAAAATAAAGGTATCTTTAAGTTATGGGCACCT  
\*\*\*\*\*  
642" ACGTTTGCTTATAAAATAGATGGAAATGAGGTAATCTTTACCTTATGGGCACCT  
1236' TATGTTAATAGTGTTAAGCTGAA-GTT--AAGCAAAAACTTATTCGAATGGAAAAAATC  
\*\*\*\*\*  
696" TATCAAAAGAGCGTTAAACTAAAGGTTCTAGAGAAGGGACTTTACGAAATGGAAAGAGAT  
1293' GATGAGGGATTTTTCGAAGTAGAAATAGACGATATCGAGGAAAAATTAACCTATTCTTAT  
\*\*\*\*\*  
756" GAAAAAGGTTACTTCACCATTAACCTTAAACAACGTAAAGGTTAGAGATAGGTATAAATAC  
1353' ATTATAGAAGATAAGAGAGAGATACCTGATCCCGCATCACGATATCAACCTTTAGGAGTT  
\*\*\*\*\*  
816" GTTTTAGATGATGCTAGTGAAATACCAGATCCAGCATCCAGATACCAACCAGAAGGTGTA  
1413' CATGACAAATCAAACTTATAAGAACAGATTATCAGATTCTTGACCTTGAAAAAGTAAAA  
\*\*\*\*\*  
876" CATGGGCCCTTCAAAATTATACAAGAAAGTAAAGAGTTCAACAACGAGACTTTTCTGAAG  
1473' ATAGAAGATCTAATAATATATGAACTCCACGTTGGTACTTTTTCCCAAGAAGGAAATTTTC  
\*\*\*\*\*  
936" AAAGAGGACTTGATAATTTATGAAATACACGTGGGGACTTTCACTCCAGAGGGAAACGTTT  
1533' AAAGGAGTAATAGAAAAAGTTAGATTACCTCAAGGATCTAGGAATCACAGGAATTGAACTG  
\*\*\*\*\*  
996" GAGGGAGTGATAAGGAAACTTGACTACTTAAAGGATTTGGGAATTACGGCAATAGAGATA  
1593 ATGCCTGTGGCACAATTTCCAGGGAATAGAGATTGGGGATACGATGGTGTTTTTCTATAC  
\*\*\*\*\*  
1056" ATGCCAATAGCTCAATTTCTGGGAAAAGGGATTGGGGTTATGATGGAGTTTATTTATAT  
1653' GCAGTTCAAAAATACTTATGGCGGACCATGGGAATTGGCTAAGCTAGTAAACGAGGCACAT  
\*\*\*\*\*  
1116" GCAGTACAGAACTCTTACGGAGGGCCAGAAGTTTTAGAAAGTTAGTTGATGAAGCGCAC  
1713' AAAAGGGGAATAGCCGTAATTTTGGATGTTGTATATAATCATATAGGTCCTGAGGGAAAT  
\*\*\*\*\*  
1176" AAGAAAGGTTTAGGAGTTATTTTAGACGTAGTATACAACCACGTTGGACCAGAGGGAAAC  
1773' TACCTTTTAGGATTAGGTCCTTATTTTTAGACAGATATAAACTCCATGGGGATTAACA  
\*\*\*\*\*  
1236" TATATGGTTAAATTGGGGCCATATTTCTCAGAGAAATACAAAACGCCATGGGGATTAACC  
1833' TTTAATTTTATGATAGGGGATGTGATCAAGTTAGAAAAATTCATTTTAGAAAAATGTCGAG  
\*\*\*\*\*  
1296" TTTAATTTTATGATGCTGAAAGCGATGAGGTTAGGAAGTTCATCTTAGAAAAACGTTGAG  
1893' TATTGGTTTAAAGACCTTTAAAAATCGATGGTCTGAGACTGGATGCAGTTTCATGCAATTTTT  
\*\*\*\*\*  
1356" TACTGGATTAAGGAATATAACGTTGATGGGTTTAGATTAGATGCGGTTTCATGCAATTATT  
1953' GATAATTCGCCTAAGCATATCCTCCAAGAGATAGCTGAAAAAGCCCATCAATTAGGAAAA  
\*\*\*\*\*  
1416" GACACTTCTCCTAAGCACATCTTGGAGGAAATAGCTGACGTTGTGCATAAGTATAATAGG  
2013' TTTGTTATTGCTGAAAGTGATTTAAATGATCCAAAAATAG-TAA-----AAGATGATTGT  
\*\*\*\*\*  
1476" ATTGTCATAGCCGAAAGTGATTTAAACGATCCTAGAGTCGTTAATCCCAAGGAAAAAGTGT  
2067' GGATATAAAATAGATGCTCAATGGGTTGACGATTTCCACCACGAGTTTCATGCATTCTATA  
\*\*\*\*\*  
1536" GGATATAAATTTGATGCTCAATGGGTTGACGATTTCCATCATTCTATTACGCTTACTTA  
2127' ACAAAGAAAAAGATTATTATACCAGGATTTTGAAGGATAGAAGATATAGAGAAAACT  
\*\*\*\*\*  
1596" ACTGGTGAGAGGCAAGGCTATTATACGGATTTCCGTAACCTTGACGATATAGTTAAATCG

FIG. 41A

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2187' TTAAAGATGTTTTGTTTATGATGGAAAGTATTCTAGATACAGAGGAAGAACTCATGGT  
\* \* \* \* \*  
1656" TATAAGGACGTTTTCGTATATGATGGTAAGTACTCCAATTTTGAAGAAAACTCACGGA  
2247' GTCCTGTAGGTGATCTTCCACCACGTAAATTTGTAGTCTTCATACAAAATCACGATCAA  
\* \* \* \* \*  
1716" GAACCAGTTGGTGAAGTACGCGATGCAATTTCTAGTTTATATACAAAATCACGATCAA  
2307' GTAGGAAATAGAGGAAATGGGGAAAGACTTTCCATATTAACCGATAAAACGACATACCTT  
\* \* \* \* \*  
1776" GTCGGAAATAGAGGCAAAGGTGAAAGAATAATTAAATTAGTCGATAGGGAAAGCTACAAG  
2367' ATGGCAGCCACACTATATATACTCTCACCCTATATACCGCTAATATTTATGGGCGAGGAA  
\* \* \* \* \*  
1836" ATCGCTGCAGCCCTTTACCTTCTTTCCCCCTATATTCCAATGATTTTCATGGGAGAGGAA  
2427' TATTATGAGACGAATCCTTTTTCTTCTTCTGATTTCTCAGATCCCGTATTAATTAAG  
\* \* \* \* \*  
1896" TACGGTGAGGAAAATCCCTTTATTTCTTTCTGATTTTTCAGATTCAAAACTGATACAA  
2487' GGTGTTAGAGAAGGTAGACTAAAGGAAAATAATCAAATGATAGATCCACAATCTGAGGAA  
\* \* \* \* \*  
1956" GGTGTAAGGGAAGGGAGAAAAAAGGAAAACGGGCAAGATACTGACCTCAAGATGAATCA  
2547' GCGTTCTTAAAGAGT--AAACTTTTCATGGAAAATTGATGAGGAAGTTTTAGATTATTATA  
\* \* \* \* \*  
2016" AC--TTTAAACGCTTCCAAACTGAGTTGGAAGATTGACGAGGAAATCTTTTCATTTTACA  
2605' AACAACTGATAAATATCAGAAA-GAGAT-ATAATA-ATTGTAAGGGTAAAGGAAGTTA  
\* \* \* \* \*  
2074" AGATTTTAATAAAAAATGAGAAAGGAGTTGAGCATAGCGTGTGATAGGAGAGTAAACGTCG  
2662' GGAGAGAAGGGAACTGTATTACTTTGATCATGGAAAAAATAGGAATAATTGCATCGTTTG  
\* \* \* \* \*  
2134" TGAATGGCGAAAATTGGTTGATCATCAAGG-GAAGAGAATACTTTTCACTCTACGTTTTTC  
2722' ATGATATTGT-AATTAATTCTAAAATTACAGGTAATTTACTTATAGGCATAGGATTTCCG  
\* \* \* \* \*  
2193" TCTAAATCATCTATTGAAGTTAAGTACAGTGGAACCTTTACTTTTGTCTCTCAAAATAATTCA  
2781' AAAAAATTGAAAAAGATGAA--TTAAT-TAAGGTTAACAGAGGTGTTGGGGTATATCAA  
\* \* \* \* \*  
2253" TTCCCTCAGCATATTGAAGAAGGTAAATATGAGTTTGATAAGGGATTGCTTTATATAAA  
2838' TTAGAA  
\*  
2313" CTT

FIG. 41B

Title: NOVEL TRANSFERASE AND  
AMYLASE, PROCESS FOR PRODUCING  
THE ENZYMES, USE THEREOF, AND  
GENE CODING FOR THE SAME

Inventor(s): Masaru KATO et al.

DOCKET NO.: 049441-0133

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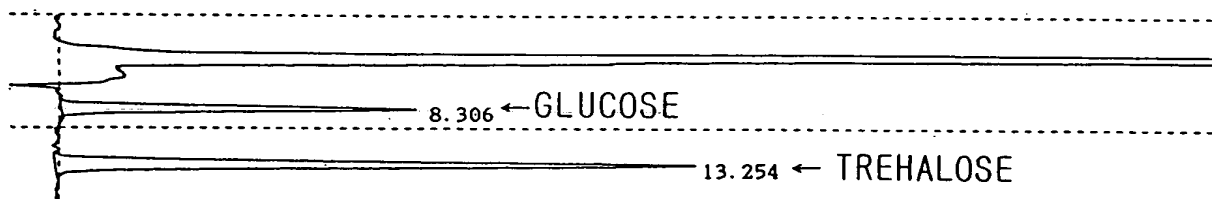


FIG. 42